The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 80, NO. 11 CHICAGO, ILLINOIS MARCH 17, 1923

RELATION OF CLINICAL TO NECROPSY DIAGNOSIS IN CANCER AND VALUE OF EXISTING CANCER STATISTICS

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Among the factors often mentioned as responsible for the undeniable fact that more deaths from cancer have been recorded in recent years than formerly is the increment of cases of cancer recognized at necropsy that were unrecognized during life. These added cases help to swell the cancer death rate; and hence, the more advanced the medical profession of a given community, the more necropsies, and the smaller the number of cancers that escape inclusion in the vital statistics of the community. The experience of necropsy disclosure of a clinically unrecognized malignant growth is so common that this factor is always brought forward when the alleged increase in the frequency of cancer is under discussion; and it is universally admitted. Despite the recognition and acceptance of this factor, however, we have very little in the way of actual evidence as to its real importance.

The most quoted paper is that of Reichelmann.[1] He examined the records of 7,790 necropsies at the Hospital Freidrichshain zu Berlin, from April 1, 1895, to June 24, 1901, among which there were 711 carcinoma cases, or about 9 per cent. He does not include sarcomas or forms of malignancy other than carcinoma. Among these 711 carcinoma cases were 156, or 22 per cent., that were not recognized during life as malignant disease, irrespective of whether the site or the character of the growth was correctly diagnosed. That is to say, if necropsies had not been performed in these cases, the vital statistics would have contained 555 instead of 711 cases of cancer from this group of deaths; i. e., necropsies added about 28 per cent. On the other hand, fifty-eight cases were diagnosed cancer when this condition was not present, so actually the figures are as follows: In 769 cases, cancer was either diagnosed correctly (62.5 per cent.), missed when it was present (20 per cent.) or diagnosed as present when there was no cancer (7.5 per cent.). Subtracting the cases added by erroneous diagnosis of cancer when it was not present (fifty-eight) from the number added by missing the cancer (156), we find that the performance of necropsies actually added ninety-eight cases to the vital statistics, or about 15 per cent. Carcinoma was diagnosed correctly 555 times, and incorrectly fifty-eight times, and was missed 151 times when present, so that there were 214 errors to 555 correct diagnoses, a diagnostic error of 27.5 per cent. in the 769 cases. Reichelmann cites also a paper by Hofmann[2] based on hospital statistics in Kiel, not available to me, which showed an addition of 19.6 per cent. to the cancer figure through necropsy.

A statistical study of the cancer cases in a large number of London hospitals has been reported by Bashford,[3] who discusses the influence exerted by microscopic examination in cancer statistics; but in these figures no exact distinction is made between cases examined at necropsy and tumors removed at operation and then examined microscopically. In all such cases, of course, the cancer had been viewed and a gross anatomic diagnosis had been made. This includes most of the tumors classed as accessible in Table 1.

Even in this group of cases, microscopic study, either with or without necropsy, added 121 cases to the 683 recognized without the aid of the microscope, or nearly 18 per cent. Presumably, the inaccessible cases alone were recognized first by necropsy, and here we find 106 added to 284, or 37.3 per cent.

In view of the fact that the foregoing statistics were compiled in other countries, and at a period when the roentgen-ray examination was not available with its important diagnostic aid, it seemed worth the labor to ascertain how things stand in this respect in a material under my own observation. I have, therefore, gone over the available necropsy records of the Cook County Hospital for the years 1917-1922, inclusive, comprising about 2,712 necropsies, and also 1,000 other records of my own necropsies not included in these statistics, although many of them were performed in the Cook County Hospital at an earlier date than 1917. In these 3,712 necropsies were disclosed 545 cases of malignant disease, or 14.7 per cent. Our figures cover all forms of malignant tumor, including cerebral gliomas and endotheliomas, that were met with on the necropsy table.

The summary of these records in respect to the chief question under consideration, i. e., how many cancers are recorded in the vital statistics that would have been omitted but for necropsy, is given in Table 2.

To offset this large error of omission, we find errors of commission, i. e., cancer diagnosed as present when no malignancy was found at necropsy, there being twenty-three such in the Cook County Hospital figures and ten in the University of Chicago figures, making a total of thirty-three to be subtracted from the 178 cases erroneously added. Therefore, our necropsies added to the 400 cases diagnosed cancer during life (367 correctly and thirty-three incorrectly) 145 cases, or 36 per cent. In 578 cases (367 correct, 178 omissions and thirty-three erroneously called cancer), there were 211 incorrect diagnoses, or a diagnostic error of 36.5 per cent.

1. Reichelmann: Berl. klin. Wchnschr. **39**: 728 and 758, 1902.

2. Hofmann: Statistik der nicht diagnostizierten Krebse, Inaug. Diss., Kiel.

3. Bashford: Scientific Reports of the Imperial Cancer Research Fund, London, 1905, No. 2, Part 1.

When we tabulate our cases, we find that an excessively small proportion are in sites accessible to direct examination. Divided on this basis we have the results presented in Table 3.

These figures indicate that, as is to be expected, few of the errors are made with external tumors.

TABLE 1.—DIAGNOSIS OF NEOPLASMS

	Malignant Neoplasms		Not Cancer but Wrongly Diagnosed as Cancer
	Correctly Diagnosed	Not Diagnosed	
Accessible	399	43	28
Inaccessible	284	109	3
Total	683	152	31

One of the chief reasons why our figures of error are so high is the fact that they include very few cases of external cancer. In most cases of external neoplasms, the condition is so obvious that little or no effort is made to obtain permission for a necropsy. On the other hand, it is in the cases in which there has been difficulty in arriving at a correct diagnosis that the permission is sought with the greatest zeal and most readily secured. Undoubtedly, the greatest influence in accounting for the large proportion of unrecognized internal tumors is the fact that so large a proportion of the cancer cases in American municipal hospitals occur in patients who are brought into the hospital when moribund or nearly so; wherefore adequate clinical study cannot, and often should not,

TABLE 2.—PERCENTAGE OF CASES DIAGNOSED BEFORE AND AT NECROPSY

	Cook County Hospital	University of Chicago	Total	Percentage
Correctly diagnosed as malignant tumors*	257	110	367	67.34
Not recognized as malignant tumors	125	53	178	32.66
Total	382	163	545	100.00

* Irrespective of whether the location or the character of the malignant growth was correct.

be made. The error in diagnosis of internal tumors, 37.1 per cent., was almost exactly the same as that reported for inaccessible tumors in the London hospitals, 37.3 per cent.

As to the diagnosis of the more commonly occurring tumors, we have in Table 4 the figures on the Cook County Hospital material, which is selected as being more nearly homogeneous as to clinical conditions than the material from my own necropsies.

This table shows that few tumors of the uterus or rectum escape recognition, as might be expected. Most of the errors here were in patients dying of some complicating condition and in a state of dissolution too advanced for thorough examination. However, it is to be admitted that there were some inexcusable errors made through neglect. For example, one patient was studied most carefully by two excellent internists because of peculiar physical findings in the chest, which led to a debate as to whether the lesion might not be a pulmonary syphilis. Their examination apparently was limited to the chest, for they accepted the junior intern's note on the history that the vaginal examination was negative. There was, however, an ulcerating carcinoma of the cervix with extensive metastasis in the right pleura.

Carcinomas of the stomach, esophagus and prostate were usually recognized, although about one third were not correctly diagnosed. As might be expected, primary carcinoma of the liver and lung most often escaped recognition. Our figures in Table 5 show that, at least in the Cook County Hospital material, primary lung and liver carcinomas are far from uncommon. Primary pancreatic tumors were not often correctly diagnosed, although the malignancy was frequently recognized but not correctly located. The same is true for primary carcinoma of the bile tracts. The low figure for the diagnosis of the brain tumors undoubtedly depends on the fact that in many cases the clinical manifestations were those of a complicating hemorrhage into the brain substance, while other patients were brought into the hospital dying in coma, with no available history.

TABLE 3.—DIAGNOSIS OF EXTERNAL* AND INTERNAL TUMORS

	Cook County Hospital	University of Chicago	Total	Percentage
External tumors correctly diagnosed	61	21	82	89
External tumors not recognized	5	5	10	11
Internal tumors correctly diagnosed	196	89	285	62.9
Internal tumors not recognized	120	48	168	37.1

* Under external tumors are included carcinomas of the skin, mouth, tongue, pharynx, breast, uterus and penis, and sarcomas of the extremities or superficial structures; but not carcinomas of the rectum, bladder or larynx.

The sort of errors in diagnosis varied, of course, with the site of each tumor. Thus, in carcinoma of the stomach, the errors were extremely varied; of the thirty-six errors, the diagnosis was heart disease (usually myocarditis) in six; and cirrhosis, pulmonary tuberculosis, carcinoma of the esophagus and carcinoma of the colon in four each. In carcinoma of the esophagus, among fifteen errors, pulmonary tuberculosis appears four times, while aneurysm was the mistake but once. Carcinoma of the pancreas, diagnosed correctly in but four of twenty-two cases, was miscalled carcinoma of the stomach six times, cirrhosis four times, and carcinoma of the liver three times. Carcinoma of the bile tracts, correctly diagnosed but four times in fifteen cases, was called carcinoma of the stomach in

TABLE 4.—DIAGNOSIS OF MORE COMMONLY OCCURRING TUMORS (COOK COUNTY HOSPITAL)

Carcinoma of:	Total	Correct	Malignancy Correct, but Site Incorrect	Diagnosed Nonmalignant or No Diagnosis	Correct, per Cent.	Correct as to Malignancy, per Cent.
Stomach	103	67	11	25	65	76
Esophagus	41	26	3	12	63	70
Pancreas	22	4	9	18	18	59
Bile tracts	15	4	5	6	27	60
Liver	10	1	2	7	10	30
Colon	17	8	1	8	47	53
Rectum	14	11	1	2	80	86
Bladder	18	8	3	7	44	61
Prostate	8	5	1	2	63	75
Uterus	21	17	1	3	81	86
Lung	11	1	2	8	9	27
Intracranial tumors	23	9	0	14	39	39
Renal tumors	9	4	2	3	44	67

five cases, and the diagnosis of gallstones was made but once. Obstructive jaundice was the diagnosis in three cases. Primary carcinoma of the liver was entered correctly as liver neoplasm in but one case in ten, cirrhosis being the diagnosis in five cases. Primary lung tumors, recognized in but one of eleven cases, and interpreted as intrathoracic tumor in two others,

was diagnosed pulmonary tuberculosis in four cases and pneumonia in two. The intracranial tumors, correctly diagnosed nine times in twenty-three cases, were interpreted as cerebral thrombosis and as epidemic (lethargic) encephalitis three times each, and twice each as cerebral syphilis and paresis.

Taking all the tumors of whatever location, we find the following to have been the commonest erroneous diagnoses: cirrhosis, twenty-one; pulmonary tuberculosis, eighteen; heart disease, usually myocarditis, eleven; pneumonia, seven; nephritis, six; jaundice, six; paresis, six; generalized tuberculosis, five. Naturally, in many of the advanced cases coming into the hospital, the terminal condition was recognized without the responsible malignancy being found, and so we have such diagnoses as intestinal obstruction, peritonitis, anemia, septicemia, dysentery, diabetes (one pancreatic cancer, one brain tumor), and abscess, as well as pneumonia, in several cases.

A study of the distribution of all the tumors (Table 5) reveals several significant facts. First is the great predominance of tumors of the alimentary system, which constitute more than half of all the cases. The fact that the character of the cancer cases seen in a large public hospital is not a fair representation of the character of cancer in the community at large is indicated by the relative infrequency of the chief external cancers, i. e., the skin, six; tongue, seven; mouth, lips and pharynx, twelve; uterus, twenty-seven, and breast, sixteen. If our statistics had been compiled from the admission records of a large surgical hospital, we should have had a totally different picture, with these very sorts of operable tumors predominating over cancer of the stomach, esophagus and pancreas. In our material, we find the supposedly rare primary cancers of the liver, fifteen, and lung, seventeen, ranking with cancers of the mammary gland, sixteen, while cancers of the pancreas, thirty-two, and intracranial tumors, thirty-three, exceed the uterine cancers, twenty-seven, which barely outnumber the respiratory tract tumors, twenty-five. Despite the obviously misleading character of such selected material as these hospital statistics furnish, we find medical literature full of erroneous statements based on just such statistics.

There were fifty sarcomas among 545 malignant neoplasms, or about 9 per cent. of all. This figure is rather lower than that given in most tables of cancer statistics. Probably there is some exclusion of sarcomas of the extremities from our necropsy material for the same reason that we find external carcinomas scantily represented. Another factor is probably a more critical acceptance of the diagnosis of sarcoma than was once general. It is being appreciated more and more that not all round and spindle cell tumors are sarcomas, and that carcinomas are much more often mistakenly called sarcomas than the reverse. We have not included any of the testicle tumors among the sarcomas, where most of them are usually placed in classification, for we are convinced that they usually represent tumors of specialized cells of mesodermal origin, and that they are rarely true sarcomas.

In all these necropsies, there was but one instance of a definitely benign tumor causing death. In this case, which is not included in our tables, intestinal obstruction resulted from uterine fibroids.

There were four instances of coexistence of two apparently independent primary malignant tumors in the same subject: (1) carcinoma of the prostate coexisting with a carcinomatous ulcer in the pylorus, which perforated into the peritoneum; (2) glioma cerebri in a man with a small fibrosarcoma in the skin of the thigh; (3) scirrhous carcinoma of the head of the pancreas with a typical ulcerating carcinoma of the stomach, and (4) giant cell sarcoma of the jaw with carcinoma of the prostate.

This study shows emphatically the lack of value of all recorded vital statistics on cancer. When we find diagnostic errors ranging from 25 to 40 per cent. in patients who have been examined in modern hospitals in Germany, England and America, with the advantages of exploratory operations, roentgen rays and laboratory studies under the most competent medical men in the community, it is certain that the diagnostic errors made throughout the country at large must be even greater. To be sure, to the large charity hospitals come an excessive proportion of patients too near death for careful study, and there come to necropsy an undue proportion of cases that are difficult of diagnosis. On the other hand, it is quite certain that a large proportion of persons who have internal cancers are not seen by physicians much earlier than are these hospital patients. It is also certain that, under the conditions obtaining in general practice, the diagnostic effort and ability will average much less than in the large hospitals.

TABLE 5.—DISTRIBUTION OF TUMORS

Site and Type	Cook County Hospital	University of Chicago	Total
Alimentary canal	232	85	317
Carcinoma of:			
Stomach	103	39	142
Esophagus	41	9	50
Pancreas	22	10	32
Colon	16	3	19
Rectum	14	4	18
Small intestine	—	1	1
Ampulla of Vater	1	—	1
Bile tract	15	5	20
Liver	10	5	15
Mouth, lips and pharynx	6	6	12
Tongue	4	3	7
Genito-urinary tract	85	34	119
Carcinoma of:			
Uterus	21	6	27
Vagina	1	—	1
Mammary gland	11	5	16
Ovary	6	—	6
Testicle	7	3	10
Prostate	8	4	12
Bladder	18	5	23
Penis	2	1	3
Ureter	—	1	1
Chorio-epithelioma	1	1	2
Kidney—			
Carcinoma	4	2	6
Sarcoma	1	—	1
Hypernephroma	5	6	11
Respiratory tract	16	9	25
Carcinoma of:			
Lung and bronchi	12	5	17
Larynx	4	1	5
Trachea	—	1	1
Endothelioma of pleura	—	2	2
Cerebral tumors	24	9	33
Glioma	20	5	25
Sarcoma	2	2	4
Endothelioma	1	2	3
Carcinoma, choroid plexus	1	—	1
Ductless glands	10	5	15
Thyroid	5	3	8
Hypophysis	3	—	3
Suprarenal	2	2	4
Sarcomas	57	21	78
Total, all sites	37	13	50
Melanosarcoma	5	2	7
Retroperitoneal	3	3	6
Mediastinal	7	—	7
Extremities	5	3	8
Endothelioma	1	4	5
Brain	1	2	3
Pleura	0	2	2
Miscellaneous	11	17	28
Carcinoma of skin	4	2	6
Carcinoma of antrum	—	1	1
Neuroblastoma	2	1	3
Chorio-epithelioma	1	1	2
Multiple myeloma	1	4	5
Carcinoma, primary site not located	2	4	6
Multiple tumors, cases	1	3	4
Chloroma	—	1	1

These necropsy statistics show convincingly that we have at the present time no reliable statistics relative to the frequency of cancer as a cause of death. The futility of attempting to learn anything concerning heredity from such statistics is even more glaringly apparent. A single error in diagnosis may lead to entirely erroneous conclusions in the study of the influence of heredity on cancer in a given family. Such accuracy is obviously not present in any existing study of human heredity in respect to cancer. We shall have no exact and very little useful information concerning cancer statistics until a very much larger proportion of vital statistics depends on postmortem examination than is now the case.

ASCERTAINING THE SPLENIC INDEX AND THE MOSQUITO FOCUS FROM SCHOOLCHILDREN

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Schoolchildren can be utilized by the epidemiologist and the health officer not only in estimating the amount of malaria in a community, but also, at times, to reveal the source of the anophelines responsible for their infection. A striking demonstration of this was made at São Paulo, Brazil, in one of the field surveys made by the Instituto de Hygiene in cooperation with the International Health Board.

Health officers and plantation managers and employers of labor in regions where there is endemic malaria not only require an index of the degree of malaria, as affected by control measures, but also need to know where the dangerous breeding places are, for often money is wasted in efforts on places in which malaria-bearing anophelines do not propagate at all or in but small and unimportant numbers.

In the survey in question, the customary method of spleen examination was pursued, and blood specimens were taken as well for the endemic index or parasite rate; but in order that no time should be lost in making the anopheline survey, the information obtained from the spleen census was immediately used in the schoolroom to ascertain the probable location of the focus of propagation of the anophelines. This was done by grouping the children according to whether their spleens were palpable or not, and by ascertaining the residence of those with enlarged spleens. An unmistakable indication of the location of the breeding place was elicited, which was confirmed by the larval survey.

The method would seem to lend itself to those special circumstances in which it is desired to locate promptly and incriminate real and dangerous breeding places in the presence of several apparent propagation areas, or to determine the relative amount of malaria arising from two or more foci. In malarial control work it is often highly desirable to know which of the collections of water in the malarial community is the real breeding place and focus of the malaria present, so that time and money can be economized by exerting effort where it will be followed by the greatest good. In the Orient it was possible, by selective grouping of the coolies after the spleen survey, to obtain corroborative testimony as to the influence of certain propagation foci on the production of mosquitoes and of the malaria found in the coolies.

In rural communities where malaria exists, the school should furnish an index of the amount of malaria present, because of the well known frequency of splenic enlargement in children in an endemic or epidemic region, and because the children are representative of the exposed group, temporarily segregated and readily accessible to the epidemiologist or to those interested in malaria control.

In malarial infection there is a correspondence in time between the appearance of malarial plasmodia, the occurrence of fever, and the enlargement of the spleen. This takes place in new infections, in reinfections and in relapse. The splenic enlargement persists for some time after the subsidence of fever.

Groups of people without protection and constantly exposed to malarial infection and to reinfection, as is the case with many rural populations, are in a constant state of flux with regard to the manifestations of the disease. Plasmodia appear and disappear from the peripheral blood. The spleen fluctuates in size from month to month, and the splenic index in such a community reveals the degree of reaction of the people to the amount of malaria present. The longer the group is exposed to the infected mosquitoes, the higher the spleen rate becomes. The closer people live to the propagation areas of the anopheline mosquitoes, the oftener they are bitten by infected specimens, and the higher the parasite rate (endemic index) and the spleen rates are found to be. When persons remove from the endemic region, the spleen returns to normal size.

When, through the influence of antilarval measures, the propagation areas of anopheline carriers of malaria are destroyed, or whenever the mosquito host of the plasmodium is controlled, as by screening, and whenever, by quininization or other means, the amount of malaria in a region or locality is lowered, the spleen rate and the parasite rate are reduced.

When one considers that the peripheral blood findings in malaria represent in many cases only an overflow, while the great drama, as Manson explained, is often enacted in the spleen and internal viscera, and that 10 per cent. or more of laborers at work in the tropical sun may harbor plasmodia in the peripheral blood, it is questionable whether the spleen rate may not be as trustworthy a measurement of malaria as clinical histories or as the results of peripheral blood examination as usually carried out.

Authorities in the Orient believe that the health officer has in the spleen rate a practical means for detecting fluctuations in the amount of malaria in a locality, and one that can be rapidly applied.

In a few instances, malaria infection is not associated with splenic enlargement, as in some cases of acute and fatal pernicious malaria and in cases of superinfection; but it is belaboring an academic point to overemphasize these cases and to refuse the method on account of them, for it is certainly true that in localities constantly exposed to malaria or those visited epidemically, a correspondence exists between the amount of malaria and the spleen rates. In a large series of determinations made in Panama by Davis and myself, a correspondence between the endemic and splenic indexes was noted.

It is also true that, wherever malaria has caused splenic enlargement, the clinical history is usually sufficiently definite to permit the making of a diagnosis from the latter. Many epidemiologists, however, would welcome a method which would elicit information without the necessity of relying on the testimony of ignorant, overzealous or incooperative persons.

Stephens and Christophers [1] have shown that the correspondence is influenced by age in that in the earlier years of life—from 1 to 2 years—the parasite rate is greater than the splenic index. Above 2 years the spleen rate is in excess of the parasite rate, while above 10 years the spleen rate is greatly in excess of the parasite rate. They recommend on the basis of their experience that children between the years of 2 and 10 be used in applying the method.

But it may happen and, as a matter of fact, often does, in times of epidemic malaria or when persons come into a malarial locality who have lived continuously in a nonmalarial place, that, as they possess no immunity to malaria, they are affected very much like children in that their spleens react to the malarial poison by enlargement. Such persons may be made use of in the malarial or spleen census. This was the case with Spanish laborers and negroes from Barbados acquiring malaria for the first time as adults in Panama.

The spleen census is used universally in the Orient by those interested in malaria investigation and control. Ross regards the splenic index as by far the best measurement of malaria when large samples are taken, for the method can be applied to large numbers, and this reduces in corresponding degrees the error due to random sampling. But even with small samples important information can be obtained. The spleen rates of schoolchildren in certain regions free from malaria as London were found to be about 1 per cent.[2] In villages in Java I found the rates to range from nil to as high as 90 per cent. plus where malaria was very severe. Barber and Coogle [3] have reported spleen rates of 5 taken in the South, with a parasite rate of 5.5 in Mitchell County, Georgia; the time of year was winter.

The spleen rates have been used to measure the degree of success in controlling malaria in certain districts. Thus, Watson [4] writes of rates rising from 3.7 to 58 when due to increased malaria, and to rates falling from 50 to 5 following antimalarial drainage works.

Swellengrebel-de-Graaf and Swellengrebel [5] show that splenic enlargement is much reduced in an epidemic region after quininization, and that the indexes will vary after antilarval and antiadult sanitation as well as after quininization. These investigators call attention to a place on the northern coast of Java in which the spleen rate is continuously high while the hospital rate fluctuates considerably. In Samarang, Java, the admissions in 1917 were high, but fell to zero the following year. The spleen rate rose from 80 to 90 and the parasite rate from 24 to 38. The authors believe that little value can be attached to hospital admissions as a measure of malaria. Here we have to consider the factors "malaria" and "sickness due to malaria" as affected by the disinclination of native people to seek hospital aid until they are moribund. There is a great difference between Chinese and Malays and Tamils in this respect.

In making the surveys in Brazil and the Orient, it was the rule to come to the village unannounced so that a good school attendance could be assured. The work was always done with the help and the attendance of the local physician, administrative officer, alcalde or priest or other influential resident citizen, so as to gain their cooperation and to enlighten them as to the conditions in the locality. The school was visited and the pupils assembled, room after room. It was convenient to use one room for all the examinations.

1. Stephens and Christophers: Practical Study of Malaria, Liverpool, University Press, 1908, p. 211.
2. Ross, Christophers and Perry: Ind. J. M. Res. **1**: 385, 1914.
3. Barber and Coogle: Pub. Health Rep. **36**: 706-710 (April 8) 1921.
4. Watson, Malcolm: Rural Sanitation in the Tropics, New York, E. P. Dutton & Co., 1915.
5. Swellengrebel-de-Graaf, J. M. H., and Swellengrebel, N. H.: Ann. Trop. Med. and Parasitol. **14**: 41 (June) 1920.

SURVEY OF A BRAZILIAN VILLAGE

In the survey reported here, the village of B. M. was visited in a coffee district in the state of São Paulo. The village lies near the Rio Tiete in the center of a rich coffee-producing country with soil of the "terra roxa," or red loam clay type composed of decomposed diabase. The soil is not only satisfactory for coffee culture, but was found to be suitable for brick and tile making. This discovery led to an influx of Italian tile workers. Malaria broke out soon after the arrival of the brickworkers, and it is probable that the malady was introduced at that time, for it has been severe since that date in 1912.

We did not go there to discover malaria. The people were well aware of its presence in seasonal visitations from September to February, or during the warmer months of the Southern hemisphere. We desired to ascertain the amount of the disease; detect the mosquito carriers; locate the propagation areas, and, if possible, give the people some advice as to control.

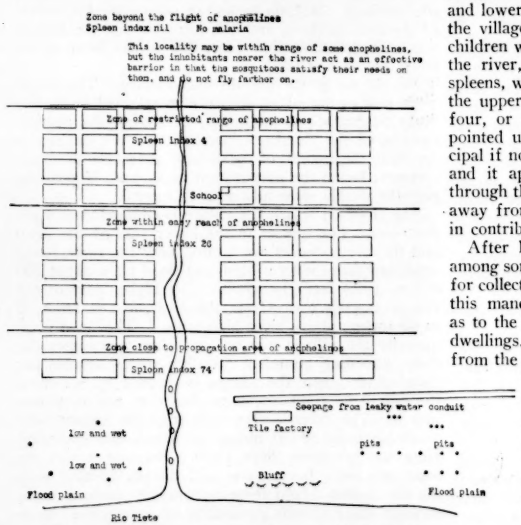
The slope on which the village is situated rises from the river. The houses in the lower part of the town and the tile factories are located near the river, being separated from it by a bluff and flood plain about 100 meters (328 feet) in width. The higher part of the village extends away from the river, and is from 30 to 40 meters above river high water. The flood plain opposite the village widens out below and across the river, affording abundant breeding places suitable for anophelines. But the village is divided by a stream through it at right angles to the river and emptying into it. The river is separated from the village by a small bluff, about 30 meters in length and emerging from the low lying flood plain. Between it and the town are some borrow-pits and ditches situated near the tile works. Into these borrow-pits there is some seepage water usually productive of anopheline breeding. But these particulars were not seen until the larval survey was made the next day. When we arrived at the village, a hasty inspection was made in order to note rapidly, if possible, the type of problem in the village. It was suspected that mosquitoes might be breeding near the river margin or in the stream that flowed through the town and flowed into the river. Some might be rising from some unseen source farther away from the river. There were no ponds or water collections other than the stream seen in the village.

The school was visited without delay, and the nature of our examination was explained to the teachers. The school attendance, a very important point in malaria surveys, showed many absentees from malaria (72 per cent. being due to malaria, according to the physician), so that the findings, so far as the spleen rates are concerned, are an underestimation of the amount of malaria present among the children as a whole.

The children were reviewed as they passed before the examiners, when the spleen was examined, blood taken for hemoglobin percentage, and records made of the name, age, sex, palpability of the spleen, and hemoglobin. The location of the dwelling was approximately

oriented in regard to probable mosquito-breeding areas. A record of school attendance was made, and from a representative sample blood was taken for the parasite rate.

When a room was assembled, the teacher was examined first, if a man, and blood taken for hemoglobin and parasite rate "pour encourager les autres." A sturdy looking boy or placid girl was chosen to begin the examination of the children. Boys and girls were examined separately. The ages ranged from 6 to 14. There was no preliminary consultation of parents. The girls were reassured by the presence of their teacher, who arranged the dress to facilitate in the palpation of the spleen. The work was facilitated by gaining the cooperation of teachers, who assembled the children, put them through the test with expedition, and saw to it that belts were removed, and clothing loosened, so that a large number could be examined without delay, and recorded the results of the examination.


Zone beyond the flight of anopheline
Spleen index nil No malaria
This locality may be within range of some anophelines, but the inhabitants nearer the river act as an effective barrier in that the mosquitoes satisfy their needs on them, and do not fly farther on.
Zone of restricted range of anophelines
Spleen index 4
School
Zone within easy reach of anophelines
Spleen index 20
Zone close to propagation area of anophelines
Spleen index 74
Seepage from leaky water conduit
Tile factory
pits
pits
Low and wet
Low and wet
Bluff
Flood plain
Flood plain
Rio Tieto

Plan of village: asterisks indicate region where larvae of Anopheles tarsimaculata were found; O indicates the stream which at first glance was noted as being a possible propagation area, but which later proved to be a sewage drain and unsuitable for anopheles production.

After the examination and before the children were dismissed, they were segregated in different parts of the room, according to palpability of spleens, and as to location of dwelling place with regard to the river and the village stream. It was interesting and rather spectacular to note in this living graph that malaria as disclosed by the children with enlarged spleens corresponded with dwellings near the river margin and not with those near the village stream, or with any location behind the village.

In most instances the spleens were not greatly enlarged, being "palpable" or "one finger's breadth." In a few children the spleen was greatly enlarged. Only two children had fever at the time of the examination.

Blood specimens were not taken from every child, but only from representative age and sex groups. Half the children from whom blood specimens were taken had positive spleens. The plasmodium was nearly always that of tertian malaria.

In regard to the analysis of the malaria cases in respect to location of residence near presumptive anopheline breeding places, the village as may be seen from the accompanying plan, was divided into an upper and lower half by a convenient street running through the village parallel with the river. Of the fifty-seven children who lived in the lower half of the town toward the river, forty-two, or 73.7 per cent., had palpable spleens, while of the ninety-three children who lived in the upper part of the town and beyond, only twenty-four, or 25.8 per cent., had palpable spleens. This pointed unmistakably to the river margin as the principal if not the sole focus of the malaria in the locality, and it appeared to eliminate the stream which ran through the village, as well as any possible place farther away from the river, as being of any real importance in contributing to the malaria of the community.

SPLEEN RATE OF THE SCHOOLCHILDREN EXAMINED AT B. M., MAY 1, 1919

	Number Examined	Spleen Positive	Per Cent.
Girls	78	26	33
Boys	72	40	55
Total	150	66	44

After leaving the school, we distributed test tubes among some of the liveliest of the boys with instructions for collecting anophelines in their homes. In the Orient this maneuver usually yielded important information as to the species of anophelines entering and biting in dwellings. The indications which we had received from the spleen census at the school were now utilized in a larval survey. Many propagation areas were found in the low places between the river and the town, along the flood plain and in the borrow-pits and ditches near the tile works. Here larvae of *Anopheles argyritarsis, A. tarsimaculata* and *A. albimanus*, well known carriers of malaria, were found in great abundance. Fewer were found across the river.

The identifications were made at once by reference to the anatomic characters of the larvae as determined by microscopic examination, without the necessity of waiting for breeding out the adults.

No breeding was taking place in the stream which ran through the village, for this, although it appeared to be a likely focus as we entered, turned out to be a drain for the village sewage, and was too foul to support anopheline species.

ENDEMIC INDEX OR PARASITE RATE

Sex	Number of Children	Number with Enlarged Spleens	Number with Positive Bloods	Per Cent. with Positive Bloods
Girls	15	6	3	20
Boys	24	15	10	41

The larval survey then confirmed the indications obtained from our spleen examinations, since the propagation areas were found to coincide with the areas near the homes of the malaria-infected children. This

was so interesting and important a demonstration that our survey led to control measures being instituted in the village by the state health department.

2711 Elsinor Avenue.

IMPROVED PHENOLTETRACHLORPHTHALEIN TEST FOR LIVER FUNCTION

IN PREGNANCY AND ITS TOXEMIAS *

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AND
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BOSTON

Realizing the importance of an accurate measure of liver function in the diagnosis, prognosis and treatment of toxemias of pregnancy, many investigators have tried to devise tests by means of which the functional capacity of the liver can be estimated under normal and pathologic conditions.

Various methods have been attempted. Examination of feces and urine for the presence or absence of stercobilin, bilirubin, urobilin and the biliary salts has its place and can be clinically applied to a certain degree. Determination of the glycogenic and glycolytic functions, the proteolytic function, the proteopexic hemoclasis crisis test of Widal, and the various blood examinations have all been utilized with varying results. Based on the fact that the liver has important excretory as well as secretory powers, several coloring matters have been used, chief among which is phenoltetrachlorphthalein.

Abel and Rowntree,[1] by means of pharmacologic studies, determined that phenoltetrachlorphthalein is excreted almost entirely by the liver, and that when injected intravenously it is not toxic. Rowntree, Hurwitz and Bloomfield,[2] and Whipple, Mason and Peighthal [3] later employed it as an indicator of liver function, by determining the amount present in the stools during the twenty-four hours following its injection. Legitimate criticisms of this method are that it is not only time consuming and disagreeable, but also not reliable, in that quantitative stool collections are frequently inaccurate indexes of the entire intestinal contents. Furthermore, the dye may be reabsorbed from the large intestine and reexcreted by the liver. Utilizing the Meltzer-Lyons duodenal tube method of bile drainage, Aaron, Beck and Schneider [4] recently estimated the phenoltetrachlorphthalein elimination in the bile. Williams,[5] using the same method, reports the results of observation on a series of normal pregnant women, with fairly constant end reactions, and also several pathologic cases with variable results, in which liver damage might reasonably have been suspected. The latter method at best is uncomfortable to the patient and undoubtedly impossible to perform at times, particularly in cases in which there is pernicious vomiting; moreover, varying amounts of bile escape around the duodenal tube and pass down the intestine, making quantitative values uncertain.

Since it has been observed that the liver is practically the only organ involved in the elimination of phenoltetrachlorphthalein, and because the dye appears in the urine only when there is impaired output in the stools, Rosenthal [6] concluded that, after the injection of the dye intravenously, there should be a retention in the blood if liver function is impaired. In a series of experiments on dogs he showed a definite retention of the dye in the blood of those animals in which liver destruction, as indicated by jaundice of the sclera, bile in the urine, and similar changes, had been produced by means of prolonged chloroform anesthesia. He later applied this improved test clinically, injecting the dye intravenously and withdrawing blood at varying intervals and determining the amount of dye present in the plasma.[7] The same test has been used in this series of normal and toxic pregnancies, the procedure here described having been carried out:

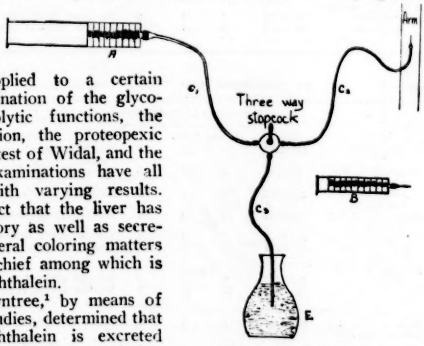

Fig. 1.—Apparatus.

The patient was weighed, and the amount of phenoltetrachlorphthalein to be injected was determined on the basis of 5 mg. of dye for each kilogram of body weight. (One cubic centimeter of the standard product as manufactured by Hynson, Westcott & Dunning contains 50 mg. of the disodium salt).

The apparatus that was used consisted of *A* (Fig. 1) a 30 c.c. syringe; *B*, a 10 c.c. syringe; C_1, C_2, C_3, a three-way stopcock with attached tubing; small test tubes, and *E*, a flask containing warm physiologic sodum chlorid solution.

The required amount of dye having been drawn into syringe *A*, rubber tubing C_1 is attached and the dye diluted with warm physiologic sodium chlorid solution from flask *E* through tubing C_2, thus forcing the air from C_2. Tubing C_3 is then placed in the flask, and C_1 removed. With the patient in the recumbent position, and a suitable vein having been selected, the part is prepared locally with alcohol and iodin, and from 4 to 5 c.c. of blood is withdrawn. The serum from this blood is to be used as the control. Leaving the needle in situ, the syringe is disconnected, the tubing C_3 attached and the diluted dye injected slowly into the vein, and at the end of the injection the time is noted. The small amount of dye remaining in the syringe and connections is then washed into the vein with approximately 50 c.c. of saline solution, and the needle is withdrawn. By means of the smallest hypodermic needle attached to a clean 10 c.c. syringe, from 4 to 5 c.c. of blood is withdrawn from a vein in the opposite arm at intervals of fifteen minutes, one hour and two hours from the time of injection of the dye. (The opposite arm is used so as to avoid the possibility of contamination with any dye that might have escaped about the site of the initial injection.) The various specimens of blood, which have been collected in labeled test tubes, are allowed to cool for about an hour, during which period the clot retracts.

* Read before the Cosmopolitan Medical Club, December 16, 1922.
* From the Department of Gynecology and Obstetrics, Boston City Hospital.

1. Abel and Rowntree: J. Pharmacol. & Exper. Therap. **1**: 233, 1909.
2. Rowntree, Hurwitz and Bloomfield: Bull. Johns Hopkins Hosp. **24**: 327, 1913.
3. Whipple, Mason and Peighthal: Bull. Johns Hopkins Hosp. **24**: 207, 1913.
4. Aaron, A. H.; Beck, E. C., and Schneider, H. C.: The Phenoltetrachlorphthalein Test for Liver Function, J. A. M. A. **77**: 1631 (Nov. 19) 1921.
5. Williams, P. F.: Phenoltetrachlorphthalein Test for Liver Function in Pregnancy, Am. J. Obst. & Gynec. **4**: 26 (July) 1922.
6. Rosenthal, S. M.: Am Improved Method for Using Phenoltetrachlorphthalein as a Liver Function Test, J. Pharmacol. & Exper. Therap. **19**: 385 (June) 1922.
7. Rosenthal, S. M.: A New Method of Testing Liver Function with Phenoltetrachlorphthalein, J. A. M. A. **79**: 2151 (Dec. 23) 1922.

They are then centrifuged at high speed, and the clear serums are removed to labeled tubes.

Standards for colorimetric comparisons are then prepared. According to Rosenthal, there would be an amount of dye in the blood stream comparable colorimetrically to 10 mg. of dye in 100 c.c. of water if there occurred no elimination after the injection of 5 mg. of dye for each kilogram of body weight. This, therefore, has been used to represent the 100 per cent. standard. From this standard solution, 50 and 25 per cent. dilutions are prepared, to each of which is added three drops of 5 per cent. sodium hydroxid solution to bring out the full color. The normal standards for colorimetric comparisons are thus prepared:

0.4 c.c. of control serum + 0.1 c.c. of 50 per cent. solution: 10 per cent. control
0.4 c.c. of control serum + 0.1 c.c. of 25 per cent. solution: 5 per cent. control

In like manner, whenever indicated, standards of varying strengths are prepared. To 0.5 c.c. of each standard and to each of the serums mentioned, three drops of 5 per cent. sodium hydroxid solution is added. The percentage of the dye present in the blood at the various intervals is then determined by colorimetric comparison of the various serums with the standards.

After applying this test to a series of patients in whom no hepatic derangement was demonstrable clinically, Rosenthal [7] determined that a normally functioning liver will remove from the blood stream all but from 3 to 7 per cent. of the dye in fifteen minutes after injection, and that, in one hour, removal of the dye is complete. On further application of this test, he obtained results which proved definite retention of the dye in persons with obvious liver damage, as indicated clinically as well as by postmortem findings.

We have applied this test to a series of pregnant women, both normal and toxic. It seems inadvisable to attempt in a paper of this scope to enter into full case history reports, so for the sake of brevity and for the ease of comparison, we shall attempt to classify and group the various cases according to their clinical pictures.

NORMAL PREGNANCIES

The group of normal pregnancies is composed of patients in the third trimester in whom there were no symptoms or clinical findings referable to any toxemia of pregnancy. We have included in this series one case of pregnancy complicated by asthma and another case complicated by pyelitis. In view of the fact that the normal curve for nonpregnant patients shows from 3 to 7 per cent. of the dye present in the blood stream fifteen minutes after injection, and 0 per cent. at the end of one hour, Table 1 shows that practically all of our so-called normal cases of pregnancy fall within these limits.

These results, although few in number, suggest that the so-called "liver of pregnancy" with its various physiologic changes shows no actual impairment of function as evidenced by this test, and that the normal curve for nonpregnant cases may also be used to represent the normal curve during pregnancy. Conclusions to this effect, however, must await similar results in a large series of cases.

TABLE 1.—OBSERVATIONS IN NORMAL CASES OF PREGNANCY

Patient	Age	Pregnancy	Month	Blood Pressure	Urine	Date	Percentage of Dye in Serum: 15 Min.	1 Hr.	2 Hr.	Comment
1. C. D.	29	Seventh	8½	115/75	Negative	9/25/22	5	½	0	Normal clinical history; normal curve
2. T. D.	32	Fourth	7	120/80	Negative	10/ 7/22	5	0	0	No toxic symptoms; normal curve
3. L. W.	24	First	8½	110/75	Negative	11/28/22	5	0	0	Frequent asthmatic attacks; otherwise normal pregnancy; normal curve
4. C. B.	25	Second	7	120/70	Alb., L. T.; numerous W.B.C.; clumps	11/19/22	5	½	0	Pyelitis + pregnancy; normal curve
5. L. C.	18	First	8½	120/80	Negative	11/22/22	7	1	0	No toxic symptoms; normal curve
6. A. M.	20	First	8	110/75	Negative	10/19/22	6	3	0	Normal clinical history; slight delay in 1 hour

TABLE 2.—OBSERVATIONS IN CASES OF NEUROTIC AND TOXIC VOMITING

Patient	Age	Pregnancy	Month	Blood Pressure	Urine	Date	Percentage of Dye in Serum: 15 Min.	1 Hr.	2 Hr.	Comment
7. L. S.	22	Second	2	110/74	Negative	11/20/22	7-8	1-2	0	Neurotic type showing practically normal curve
8. E. R.	27	Third	3	95/70	Albumin, S. T.; acetone, 0	9/26/22	9	½-1	0	Essentially as above
9. B. C.	21	First	3	136/86	Albumin, 0; acetone, 0	11/ 7/22	11	7	2	Moderate impairment of liver function
10. H. L. (a)	20	First	5½	110/80	Albumin, S. P. T.; acetone, 0	10/17/22	10	4	1	Essentially as above
(b)	..	.....	...	115/80	Negative	11/ 2/22	7	1	0	Normal curve following treatment
11. A. S. (a)	18	Second	3½	95/75	Albumin, 0; diacetic, +; acetone, S. P. T.	11/13/22	7	9	3	Moderate impairment of liver function
(b)	..	.....	...	110/85	Negative	11/22/22	6	1	0	Normal curve following treatment
12. A. C.	36	Fourth	2½	98/70	Albumin, S. T.; diacetic, ++; acetone, ++	9/ 5/22	12	12	5	Marked severe impairment of liver function
13. J. C. (a)	28	Third	2½	116/70	Albumin, V. S. T.; acetone and diacetic, F. P. T.	10/12/22	4	3	0	Slight impairment of liver function
(b)	..	.....	...	110/70	Acetone and diacetic, S. P. T.	10/17/22	9	4	0	Moderate impairment of function
(c)	..	.....	...	105/68	Diacetic, + acetone, +	11/ 2/22	7	3	..	Slight improvement; clinical picture improved
(d)	..	.....	...	98/65	Albumin, S. P. T.; diacetic, ++++; acetone, ++++	11/ 9/22	12	9	7	Very marked impairment of liver function
(e)	..	.....	...	94/65	Acetone, ++; diacetic, ++	11/15/22	13	14	10	Severe impairment (dangerously ill)
(f)	..	.....	...	100/70	Albumin, S. P. T.; acetone, 0; diacetic, 0	11/22/22	9	4	½	Marked improvement of liver function (clinical picture improving)
(g)	..	.....	...	108/75	Negative	12/10/22	4	½	0	Normal curve following subsidence of symptoms

NEUROTIC AND TOXIC VOMITING

Under the heading of neurotic and toxic vomiting are grouped the cases in which vomiting has been the

predominant symptom. Several of these patients have shown such definite changes in their degree of liver function impairment, coinciding with the clinical manifestations, that it seems advisable to discuss them separately.

CASE 7.—L. S., at the fifth week of pregnancy, had a four day period of excessive vomiting, which ceased on the day of admission. She was discharged well; no vomiting had occurred four days later. The test curve was virtually within normal limits.

CASE 8.—E. R. began vomiting when five weeks pregnant, and continued for twenty days, with associated headaches. Vomiting ceased after two days of starvation treatment. The test on the day of entrance showed a slight increase in fifteen minutes, but a normal level in one hour.

CASE 9.—B. C. was four months pregnant, and had vomited somewhat excessively for the last three months, associated with frequent headaches and dizzy spells. There was no appreciable loss of weight, and the general condition appeared fair. The test showed an elevated curve suggesting impairment of liver function. The patient refused admission to the hospital, and could not be followed further.

CASE 10.—H. L., when two months pregnant, was treated in the Homeopathic Hospital for excessive vomiting. She was discharged well after nine days. She entered Boston City Hospital when five and a half or six months pregnant with a history of excessive vomiting for two weeks prior to entrance, and vomitus containing blood streaks for the last two days. The vomiting ceased after four days of treatment. The test on entrance showed a moderate impairment of hepatic function (10 *a*).

The patient returned for another test, feeling well, with no vomiting for three weeks. The test curve was within normal limits (10 *b*).

CASE 11.—A. S., admitted, November 12, about three and one-half months pregnant, with a history of severe headaches, blurring of vision, and excessive vomiting for twelve days, was unable to retain anything by mouth. The general condition was fair; the face, drawn; the tongue, moist; pulse, 94. The test on entrance (11 *a*) showed definite impairment of liver function.

The patient improved rapidly under treatment, vomiting ceased, and she was ready for discharge, November 22, when the test curve (11 *b*) showed evidence of a normally functioning liver. The patient was seen again three weeks later, feeling perfectly well.

CASE 12.—A. C., admitted, September 1, had had her last period, June 15. There had been pernicious vomiting for five weeks prior to admission. Therapeutic abortion was performed at home four days prior to entrance, but vomiting persisted.

A test, September 5, showed evidence of severe liver function impairment.

September 6, vomiting became aggravated, and the sclerae showed a faint tinge of jaundice. Dilation and curettage was performed, with liberation of a small amount of placental tissue, but the patient died shortly afterward.

CASE 13.—J. C., admitted, Oct. 12, 1922, had had her last period, August 6. She had vomited considerably for the last two weeks, especially during the last three days. The general condition was good; the pulse, 84.

A test on entrance showed slight delay in the one hour specimen (Curve *A*, Fig. 2).

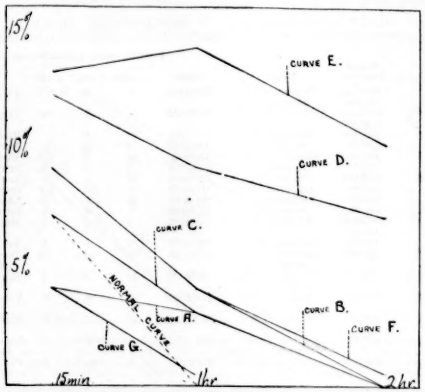

Fig. 2.—Test curves throughout clinical course in Case 13.

October 17, the patient was somewhat worse than on entrance; she vomited considerably. She was given rectal feedings almost exclusively. A test indicated moderate functional impairment (Curve *B*).

November 2, definite improvement was recorded. There was very little vomiting. The patient had been out of bed for the last few days. The test curve was somewhat lower than the previous one, indicating some improvement (Curve *C*).

November 9, it was noted that for the last five days the patient had rapidly become more toxic, vomiting very frequently. The pulse varied from 100 to 104. The test curve was much elevated over previous curves, suggesting marked liver function impairment (Curve *D*).

November 11, there was jaundice of the sclera, which became somewhat more marked, November 14. The patient was much worse, very irritable and apprehensive. There was evidence of a definite toxic psychosis. She was placed on the dangerous list. The pulse ranged from 116 to 120. The systolic blood pressure was 96; the diastolic, 60. The test indicated severe impairment of liver function (Curve *E*).

By November 22, marked improvement had taken place. The patient was rational and felt well. She was placed on the full house diet. There was no vomiting. The test curve had dropped markedly, showing marked improvement of liver function (Curve *F*).

The patient was discharged from the hospital, November 28, and had felt very well since then. The test curve, December 10, was normal (Curve *G*).

Study of Table 2 and the accompanying case reports suggests that in cases of toxic vomiting there is a very definite relation between the degree of toxicity of the patient, as evidenced by the clinical picture, and the degree of functional impairment of the liver, as evidenced by this test. This is clearly demonstrated in Case 13, in which there occurred several fluctuations in the degree of toxicity, with corresponding variations in the test curves.

In one instance the test showed functional impairment somewhat more severe than the accompanying clinical picture would indicate. This, however, was followed in a few days by definite jaundice, toxic psychosis and, in general, a markedly aggravated picture. The question, therefore, arises as to whether it may not be possible by means of this test to anticipate the clinical picture and to institute proper therapeutic measures at an earlier period. The question also arises as to whether considerable aid might not be obtained in differentiating the neurotic type from toxic cases by means of this test, as we have found that in the few cases studied in which the outcome and the general course of the clinical picture warranted the former diagnosis, the functional capacity of the liver was little, if at all, impaired.

HYPERTENSION GROUP

Cases of hypertension, in several of which apparently there were frank renal pathologic changes as a basis, are included in this group with preeclamptic and

eclamptic cases. The majority of the cases are pre-eclamptic, in which relief of symptoms occurred following treatment or delivery.

CASES 14 and 15.—Both patients were from six to seven months pregnant, and their blood pressures ranged from 130 to 150, systolic, and from 90 to 100, diastolic. There was occasional slight blurring of vision with no other toxic symptoms. Tests in each case showed very slight impairment of function.

CASE 16.—A. F. was followed in the outpatient department of the Boston Lying-In Hospital, where she was treated for hypertension. The blood pressure ranged between 140 and 180, and she experienced occasional headache and blurring of vision. She was referred to the house because of hypertension. Examination of the urine revealed a trace of albumin. Test *a*, prior to delivery, showed evidence of definite impairment of liver function. Test *b*, taken one week after delivery, was within normal limits. The blood pressure has been normal since delivery (130 systolic, 90 diastolic).

CASE 17.—R. C. was treated in the outpatient department for hypertension for the last six weeks. There had been hospitalization. Blood pressures taken at frequent intervals varied from 128 to 150.

December 11, the systolic blood pressure varied from 140 to 160, and the diastolic from 96 to 106. There was definite accentuation of symptoms. The patient was delivered of a living baby by means of low forceps.

December 24, the patient felt perfectly well. The blood pressure had ranged from 116 to 120 for the last ten days. The test curve was within normal limits.

CASE 19.—L. K., admitted, November 22, had had occasional nausea. There had been slight edema of the lower extremities for several months. There were occasional bright spots before the eyes. The blood pressure for a few months had been around 130 and 136 systolic.

A test done November 19 showed slight impairment of function. The patient entered the hospital six days later, November 25. Convalescence was uneventful except that the blood pressure remained somewhat elevated.

Dec. 5, 1922, the test curve was normal.

CASE 20.—J. M. was admitted, Nov. 23, 1922, in a comatose condition with a history of having had one convulsion. A negative history was obtained from the family with exception

TABLE 3.—OBSERVATIONS IN HYPERTENSION GROUP

Patient	Age	Pregnancy	Month	Blood Pressure	Urine	Date	Percentage of Dye in Serum: 15 Min.	1 Hr.	2 Hr.	Comment
14. I. J.	22	Third	7	138/80 to 150/90	Albumin, S. T.; acetone, 0	11/23/22	8	2	F.P.T.	Very slight impairment of liver function
15. M. G.	20	First	6½	130/70 to 150/100	Albumin, S. P. T.	11/20/22	7	2	0	Very slight impairment
16. A. F. (a).....	31	Fourth	9	155/100	Albumin, T.	11/ 7/22	10	5	..	Moderate impairment of liver function
(b).....	..	.....	...	130/90	Negative	11/15/22	5	½	..	Normal curve following delivery
17. R. C. (a).....	39	Sixth	7	150/90	Albumin L. T.	11/13/22	10	5	½-1	Moderate impairment
(b).....	..	.....	...	130/70	Negative	11/23/22	7	1	0	Normal curve following delivery
18. T. W. (a).....	18	First	8	150/100	Albumin, T.	11/15/22	12	4	2	Moderate impairment of liver function
(b).....	..	.....	...	144/96	Albumin, T.	11/22/22	12	6-7	2-3	Impairment slightly more marked
(c).....	..	.....	...	145/95	Albumin, T.	12/ 5/22	14	6	2	About the same as above
(d).....	..	.....	...	120/80	Negative	12/24/22	7	0	0	Normal curve following delivery
19. L. K. (a).....	28	Fourth	9	134/80 to 150/95	Albumin, T.	11/19/22	7	5	1	Moderate impairment
(b).....	..	.....	...	135/80	Albumin, S. T.	12/ 5/22	6	0	0	Normal curve following treatment
20. J. M. (a).....	32	First	9	170/105	Albumin, L. T.; casts, ++	11/23/22	16	14	6?	Very marked impairment of liver function
(b).....	..	.....	...	185/105	Albumin, L. T.; casts, +++	11/26/22	11	5	1	Impairment much less severe
21. M. B.	24	Third	9	215/120	Albumin, L. T.; casts, +++	11/16/22	15	9	5	Very marked impairment
22. A. M. (a)....	19	First	9	150/96	Albumin, L. T.; casts, 0	11/28/22	11	7	5	Marked impairment of liver function
(b).....	..	.....	...	128/100	Albumin, L. T.; casts, +	12/ 2/22	9	9	7	Impairment more marked (patient having convulsions)
(c).....	..	.....	...	118/75	Negative	12/14/22	9	½	0	Practically normal curve following delivery

edema of the ankles for the last two months, but no headaches or visual disturbances. There had been epigastric pains and edema of the hands for the last two weeks. The patient was referred to the house. The systolic blood pressure was 150; diastolic, 90. Urine examination disclosed a large trace of albumin.

Test *a* showed definite evidence of impaired function. Precipitate premature delivery occurred the following day, and the blood pressure remained about 130 systolic and 70 diastolic for the following week. Test *b*, taken nine days postpartum, showed a normal curve.

CASE 18.—T. W. entered the hospital, Nov. 15, 1922, at about the end of the eighth month of pregnancy, with a history of moderate nausea and occasional vomiting, and dizziness during the last month. The systolic blood pressure on entrance was 150; diastolic, 100. A large trace of albumin was present in the urine. There were no casts. There was moderate edema of the ankles.

The test showed moderately severe impairment of liver function.

Definite improvement in the general condition occurred during the week ending November 22, with relief of symptoms to such a degree as to warrant discharge to the outpatient department. The test done preliminary to discharge, however, showed liver function impairment as severe as at entrance. The blood pressure again was elevated. The patient was advised to remain in the hospital.

December 5, the test showed results quite similar to previous curves. The clinical picture in general warranted of moderate edema of several months' duration. The patient apparently was at term. The fetus was apparently dead in utero. It was said that the patient had been in labor for the last thirty-six hours. The cervix, however, was not dilated. A bag was employed, and eliminative measures were instituted. The test showed severe liver function impairment. The patient was delivered of a dead fetus, partially macerated.

November 24, the general condition was much improved.

November 26, the patient's general condition was very poor. There were evidences of nephritic involvement of a severe degree. The blood pressure was high; edema was increasing. The patient evidently was dangerously ill.

The test curve showed much improvement of liver function, although clinically the patient was dying of nephritis. This suggests that there is a possibility that this test may become of value in differentiating between nephritis and eclampsia.

CASE 21.—M. B. was admitted, Nov. 16, 1922, with a history of having felt perfectly well up to about ten days before, when she began to have abdominal pain, frequent micturition, and moderate edema of the ankles. She had had headache for the last two days, and increasing edema and slight nausea and vomiting on the day of admission. The blood pressure was from 210 to 220. The patient was at term; the fetus was apparently dead in utero. Eliminative measures were instituted.

The test showed marked functional impairment.

The patient gradually became more confused and mentally torpid, and had severe convulsions in rapid succession. She was delivered of a dead fetus. Cardiac embarrassment and

pulmonary edema intervened, and the patient died on the following day.

CASE 22.—A. M., who was about at term, entered the hospital, Nov. 28, 1922, with a history of edema of the legs for the last two weeks. She had felt very well throughout pregnancy. The blood pressure was 154 systolic and 96 diastolic. Examination of the urine disclosed a large trace of albumin. There were no casts.

The test showed marked impairment of function, suggesting greater toxicity than the clinical picture indicated.

By December 2 there was marked improvement of the clinical picture. Edema was almost gone. The systolic blood pressure ranged from 128 to 136, and the diastolic from 76 to 84. The urine was almost free of albumin. The patient had been feeling very well until suddenly, on the morning of December 2, after feeling slightly confused, she had a convulsion. Rigorous treatment was instituted, a bag was employed, and the patient was delivered later by low forceps of a living baby.

The test was done between convulsions, and injection of the dye was followed with 500 c.c. of intravenous saline solution after venesection which undoubtedly diluted the dye somewhat; but still the test curve showed marked impairment of function.

December 14, excellent convalescence had occurred. The test curve was within normal limits.

Table 3, with the accompanying test curves and case reports, indicates that there has been liver function impairment in every case in which there has been sufficient clinical evidenct to warrant a diagnosis of preeclampsia or eclampsia. Whenever the clinical picture showed a considerable degree of toxicity, curves have been obtained which indicate corresponding degrees of impairment of liver function. In several instances, however, the test has indicated degrees of toxicity more severe than the corresponding clinical picture suggested (Cases 18 and 22). Further developments in these cases, however, showed definite accentuation of clinical symptoms suggesting that the test curve preceded the clinical picture in evidencing toxicity.

Hourly blood pressure determinations in cases of preeclamptic toxemia have shown variations at various intervals, fluctuating from considerable degrees of hypertension to approximately normal levels within short periods of time, in cases in which the test curve has consistently shown definite impairment and in which subsequent developments proved definite marked toxicity. This suggests that greater reliance might be placed on this test than on blood pressure determinations or other variable clinical symptoms. Whenever, in cases of toxemia, the patients have been relieved from symptoms, either by treatment or by delivery, the test curves have fallen to normal limits, showing rapid return to normal liver function. The time required in these cases apparently varies directly with the degree of liver impairment.

COMPOSITE CURVES

Figure 3 is composed of composite curves which have been compiled from readings obtained in the entire series of cases.

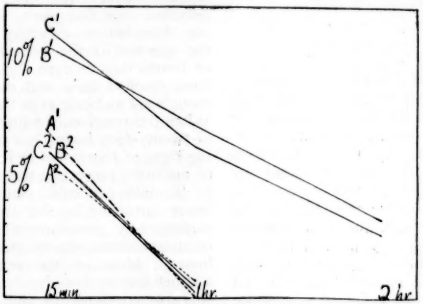

Fig. 3.—Composite curves: A^1, normal curve for nonpregnant patients; A^2, curve in normal pregnancies; B^1, curve in cases of toxic vomiting; B^2, curve in same cases as B^1, after relief of symptoms; C^1, curve in cases of hypertension, including preeclampsia and eclampsia; C^2, curve in same cases as C^1, after relief of symptoms.

Curve A^2 represents our normal curve, and is based on results obtained from our series of normal pregnancies. This curve is seen to coincide, for all practical purposes, with Curve A^1, the normal curve for normal nonpregnant cases.

Curve B^1 is based on tests in so-called toxic vomiting cases, all cases in this series in which vomiting was a predominant symptom.

Curve B^2 is based on the same cases as B^1 after the patients were clinically relieved.

Curve C^1 is based on results obtained in cases in which hypertension was a predominant symptom. The majority of these cases were of preeclampsia and eclampsia.

Curve C^2 is based on the same cases as C^1, following relief of symptoms subsequent to treatment or delivery.

Figure 3 demonstrates graphically that toxic cases of pregnancy show definite liver function impairment, and that subsequent to relief from the toxic symptoms there is return of liver function to normal limits.

SUMMARY

The phenoltetrachlorphthalein test, as described in the foregoing, has been used to measure liver function both in normal and in toxic cases of pregnancy.

Normal cases of pregnancy show a curve coinciding with that of normal nonpregnant cases, suggesting that the so-called "liver of pregnancy" with its various physiologic changes shows no actual impairment of function.

Toxemias of pregnancy, including eclampsia, show a definite relation between the degree of liver impairment, as measured by this test, and the degree of toxicity, as evidenced by the clinical picture.

Results obtained in several cases suggest that this test is a more accurate index of existent toxicity than variable clinical symptoms are, and that it may be possible by means of this test to anticipate the clinical picture in forming an opinion as to the degree of toxicity existent at a given time.

Toxemias of pregnancy, including eclampsia, show definite liver impairment, and subsequent to relief from toxic symptoms there is a return of liver function to normal limits.

We believe that this test gives a quantitative index of functional capacity of the liver, and that in the toxemias of pregnancy it will aid greatly in serving as an index of treatment and will assist in determining the time at which therapeutic abortion or induction of labor should be performed in cases in which these measures may become necessary.

Mysticism.—We must, after all, come to terms in some way with the emotions underlying mysticism. They are very dear to us, and scientific knowledge will never form an adequate substitute for them. No one need fear that the supply of mystery will ever give out; but a great deal depends on our tase in mystery; that certainly needs refining.—Robinson: The Mind in the Making.

THE INTRACUTANEOUS GUINEA-PIG TEST (KELLOGG)

FOR HUMAN SUSCEPTIBILITY AND IMMUNITY TO DIPHTHERIA

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Since the publication of an article [1] describing a new test for the determination of immunity and susceptibility to diphtheria, opportunity has been afforded to check this method against the Schick test under a variety of conditions, and this experience with nearly 200 comparative tests prompts the offering of a second paper on the subject.

Some of the results of parallel tests, and the conclusions reached, more properly form material for a discussion of the Schick test, because they pertain chiefly to experiences in the practical application of the latter. These observations will, therefore, be left for discussion elsewhere. The Kellogg test, for so it has come to be known for want of any other short appellation, is, briefly, the injection into the skin of a white guinea-pig of a mixture of equal parts of blood serum from the person tested and a toxin dilution containing one thirtieth of the L + dose per cubic centimeter. If the patient's serum contains exactly $\frac{1}{30}$ unit of antitoxin for each cubic centimeter (the amount stated by Schick as being protective), 0.1 c.c. will contain $\frac{1}{300}$ unit of antitoxin. Two-tenths cubic centimeter of the mixture of serum and toxin will, therefore, contain $\frac{1}{300}$ unit of antitoxin and $\frac{1}{300}$ L + dose of toxin.

The combining ratio of these substances is such that there will be free in the mixture $\frac{1}{300}$ minimal lethal dose of toxin, which is just sufficient to produce redness without necrosis in the skin of the guinea-pig. This degree of reaction, as also anything less, constitutes a negative result and indicates immunity.

If necrosis appears, there is less than $\frac{1}{30}$ unit of antitoxin per cubic centimeter in the serum, and the subject is not immune. However, serum frequently contains antitoxin in quantities insufficient to give a negative Schick reaction or to afford protection, yet these minute quantities modify somewhat the intensity of the positive reaction on the guinea-pig. Experience with these varying degrees of positiveness, when produced with known amounts of antitoxin, enables us to judge roughly the amount of antitoxin present in routine tests. No experience is needed, however, to decide between cases that have $\frac{1}{30}$ unit or more of antitoxin (negative) and those that have markedly less than $\frac{1}{30}$ (positive) for the reason that the criterion is the presence or absence of a breaking down of the epithelial layer, with blackening. This is observed frequently on the second day, but sometimes not till the third day, over the central portion of the red area. This red area develops in a few hours in all tests except in those with serum containing $\frac{1}{25}$ unit or more of antitoxin per cubic centimeter, in which case no reaction results. When no antitoxin, or only traces, are present, there is usually observed a small dead white spot in the center of a red area at the end of twenty-four hours. This means commencing necrosis, and the outcome (a positive reaction) is now a foregone conclusion, and may be so reported. A little more antitoxin may prevent this early blanching, and in this event we may be unable to determine the reading until the second day. Occasionally it is necessary to wait until the third day for the development of necrosis, but not often. The progress of the positive reaction is characterized by this sequence of events:

An area, bright red, and from 15 to 20 mm. in diameter, forms within a few hours. In twenty-four hours, there is usually observed a central white spot which is premonitory of necrosis. In from forty-eight to seventy-two hours the area of the central white spot has enlarged and commenced to brown in the center, leaving a margin of white necrotic epithelium as a border beyond which the red zone extends. This brownish area shows a breaking down of the superficial layers of the skin with slight serous exudation, rapidly drying to form the brown and later black scab. A second white ring is common and is quite characteristic, giving the so-called target appearance. In from seventy-two to ninety-six hours the brown area has become black. This black spot is a scab which is detached in a few days. Milder degrees of necrosis are seen, but no difficulty is experienced in deciding the question if the decision is deferred to the third or fourth day, as even slight necrosis will by this time have resulted in a scab which is unmistakable even though not as black as in the total absence of antitoxin. When the reaction is definite and bright red at the end of twenty-four hours, but progresses no further, showing signs of regression in forty-eight hours, the amount of antitoxin present in the patient's serum is very close to $\frac{1}{30}$ unit per cubic centimeter. The guinea-pig is never sensitized to the proteins of diphtheria toxin; consequently, pseudoreactions never occur. One half of the reactions can be read definitely in twenty-four hours. Most of the remainder are conclusive in another twenty-four hours. A very few have to wait seventy-two hours for final reading.

In practice we have found that the skin reaction is qualitative rather than quantitative, and that 0.1 c.c. gives exactly the same type of reaction as 0.2 c.c., except that it is smaller in area. Our routine method now is to draw into the syringe $\frac{3}{20}$ c.c. of the serum-toxin mixture, which allows for some loss in injecting, and still gives us 0.1 c.c. in the skin.

While the injection is made intracutaneously, as in the Schick test, the consequences of unskilful technic in making the injection are not as serious as in the latter test. It is impossible to *bury* the reaction by too deep an injection, because the amount of toxin present in a mixture giving rise to a positive reaction is from four to ten times as much as is injected in the Schick test. According to Park,[2] in several hundred Schick tests applied to both arms, 2 per cent. showed the reaction on only one arm, the explanation presumably being that in the failures the injection was placed too deeply.

Blood specimens may be sent by mail to laboratories performing the test, as the antitoxin content of the serum is very stable. Only 0.1 or, at most, 0.2 c.c. of serum is required, so that 0.5 c.c. of blood is all that need be collected. This amount can easily be obtained by pricking the lobe of the ear with a needle or small lance, but many will prefer to take the blood from a vein with a hypodermic syringe.

The toxin is conveniently kept ready for quick and accurate dilution by adding pure neutral glycerin to

1. Kellogg, W. H.: A Test for Diphtheria Immunity and Susceptibility, J. A. M. A. **78**: 1782 (June 10) 1922.

2. Park, W. H.: Toxin-Antitoxin Immunization Against Diphtheria, J. A. M. A. **79**: 1584 (Nov. 4) 1922.

make the volume of the L + dose exactly 1 c.c. Five-tenths cubic centimeter of this glycerinated toxin is added to 14.5 c.c. of sterile physiologic sodium chlorid solution. This gives a strength of $\frac{1}{30}$ L + dose to 1 c.c.

In the laboratory, the specimens of blood are centrifuged, and 0.1 or 0.2 c.c. of the clear serum is placed in a 2 c.c. shell vial. An equal quantity of the toxin dilution is now added to the serum in the shell vial, a 1 c.c. record or Luer syringe being used preferably for measuring both serum and toxin. The same syringe may be used for measuring several serums if it is washed out several times with salt solution after each use. It is necessary, before drawing up serum or toxin, to expel carefully all liquid left in the lumen of the needle, for if this is not done it will be drawn up into the fluid being measured, thus altering the strength. The vials are agitated sufficiently to insure thorough admixture of their contents, and allowed to stand at room temperature for half an hour.

During this wait, the guinea-pigs, which must be white, are prepared by plucking the long hair from an area on one or both sides, and then shaving to give a clean surface. The process of plucking does not seem to inconvenience the pigs any more than the shaving, and the method is to be preferred to that of using depilatory pastes.

If the toxin is fairly low in the number of minimal lethal doses to the L + dose, six tests may be placed on one pig, three on a side, without fear of killing the animal by an overdose of toxin, should all the tests be positive. The toxin we are using at present has twenty-five minimal lethal doses in the L + dose; consequently, the most toxin that can be present in a single positive test is one-twelfth minimal lethal dose, or a total of half a minimal lethal dose in six inoculations ($25 \div 300 = 1/12$). Guinea-pigs should not be used a second time for this work on account of the possible development of an immunity. The injection is made intracutaneously with a 26 gage needle, the same as for the Schick test.

Concerning the maintenance of a potent toxin by laboratories using this test, it may be said that, notwithstanding the liability of toxin to deterioration, the difficulties from this source, contrary to what obtains in the Schick test, are negligible. In the first place, a fall in the minimal lethal dose value will have no effect on the guinea-pig test so long as the L + value has not materially changed. Fortunately, the nature of toxin is such that the L + or neutralizing value falls very much more slowly than its toxic quality; in fact, barring accidents, hardly at all in periods of several months, in a well "ripened" toxin.

The affinity of antitoxin for toxin is so great that one unit neutralizes many minimal lethal doses (according to the number in the L + dose), and it follows that the amount of toxin (measured on the L + basis) may be considerably diminished in the test without greatly diminishing the amount of antitoxin necessary to give a negative reaction. If the toxin used should have deteriorated, unknown to the technician, say 10 per cent. in its L + value, $\frac{1}{33}$ unit of antitoxin in the serum tested will give the same reaction as $\frac{1}{30}$ unit with full strength toxin. If a fall of 20 per cent. (which, it is safe to say, need never be expected) should have occurred since the last standardization, $\frac{1}{40}$ unit will give the same reaction. Conversely, a test serum containing 10 per cent. less than the $\frac{1}{30}$ unit required for protection will permit a reaction that will be quickly noted, while 20 per cent. less will permit a definitely positive reaction, owing to the increased amount of toxin remaining free. These facts explain the great sharpness of reaction and the greater sensitiveness of this test over the Schick.

It is a simple matter to check up the strength of a toxin by making a series of dilutions, each one of which contains one-thirtieth of a possible or tentative L + dose per cubic centimeter, the dilutions varying from one another in strength by one one-hundredth of the original L + value of the toxin. Thus, if the last known value of the toxin was 1 c.c. to the L + dose, one solution is made which will represent 1 c.c. of the toxin to 30 of physiologic sodium chlorid solution; the next stronger will contain 1.01 c.c., and so on, increasing by 0.01 c.c. till four or five dilutions have been made.

After the dilutions have been prepared, 0.2 c.c. of each is placed in tubes or shell vials, and to each is added the same amount of antitoxin solution of such a strength that 1 c.c. equals $\frac{1}{30}$ unit. Two-tenths cubic centimeter is injected intracutaneously, as previously described. The amount of toxin used in the strongest dilution failing to produce necrosis in seventy-two hours is the true L + dose.

The toxic quality of a toxin (on which the Schick test but not the Kellogg test depends) falls extremely rapidly under certain conditions (temperature, light, age, and the like) so that hundreds and perhaps thousands of Schick tests are performed with damaged toxin,

SUMMARY OF COMPARATIVE RESULTS

Kellogg	Schick	Number
Positive	Negative	1
Positive	Neg. pseudo	2
Negative	Positive	1
Negative	Combined pos.	7
Same with the two tests		149
Total		160

and frequently the false negatives received with such a toxin are not recognized by the operator because he has no check or control against a poor toxin. It may be said that he should be on his guard for such an eventuality, and have his suspicions aroused by too high a percentage of negatives; but he has no such check when applying a few tests at a time. The fact remains that he does not always recognize the difficulty, even when testing large groups.

The accompanying table shows the results of tests applied in parallel with the Schick test on 160 persons, in four different groups, each group being tested at one time by the two methods. Three of these groups were adults, one consisting of sixteen laboratory workers, one of public health nurses, twenty-three in all, and the other, of fifty-five medical students.

The remaining group was composed of children in a school for the deaf and blind. In this institution, 233 Schick tests were made, and all showing pseudoreactions were retested by guinea-pig inoculation. The number retested was sixty-six, which seems a high percentage of protein reactions; but most of the children were young adolescents, very few being under 10 years of age.

Among the miscellaneous specimens examined, in addition to the 160 mentioned above, two were received with a history of the children having given positive Schick tests followed by a course of three injections of toxin-antitoxin mixture six months before. Both of these bloods gave a positive reaction on the guinea-pig, which immediately raises the question of the potency of the toxin-antitoxin mixture.

With two exceptions, the Schick test and the Kellogg test in this entire series of 160 persons tested have agreed so far as uncomplicated Schick tests were concerned. The first of these exceptions was in a public health nurse who was tested by both methods, along with the other members of her group, twenty-three in all. She gave a clean-cut Schick positive, uncomplicated by protein reaction, and a negative Kellogg test. This result was so surprising that she was asked to return so that another sample of blood could be taken as a check against some such mistake as leaving the toxin out of the mixture. The second test was the same as the first, negative on the guinea-pig. Unfortunately, another Schick test was not done, and the subject is now out of reach.

There are two possible explanations for the conflicting results in this case. First, the patient may be sensitive to toxin (as a protein), giving a skin reaction to raw toxin, even though protected by an ample amount of natural antitoxin. The heated control remained negative for the reason that the toxin had been destroyed and the subject was not sensitive to the usual proteins of the toxin solution. This explanation presupposes that toxin is a true protein in chemical structure.

The other explanation is that the subject should have given a negative pseudoreaction with the Schick test; but, through a slip in technic (too deep an injection), no reaction followed the injection of heated toxin. Such a chance, previously referred to as having been reported by Park, is easily possible.

The second exception occurred in the group of medical students, and is probably an example of a false negative resulting from accidental misplacement of the injection in the Schick test.

The first test resulted in a negative Schick and a positive Kellogg reaction. In the second test, the Kellogg test remained the same, but the Schick test was positive, although not a very strong one. There was some transitory protein reaction in this case, but it is not included with the protein-sensitive group, for the reason that the explanation of the difference in the two tests at the first trial is not based on the existence of such sensitization.

Differences in results between the two tests, among protein-sensitive persons, were observed twice in the medical student group of fifty-five, both being read as negative pseudoreactions by the Schick test but giving positive reactions on the guinea-pig. These three false negatives give in this group an error for the Schick test of 5.45 per cent.

Among the sixty-six in the blind school given both tests, all of which were protein sensitive, the Schick results as finally interpreted after several inspections, and some changes of opinion, agreed with the guinea-pig readings in all excepting seven instances. These seven were recorded as combined positives by the Schick and as negative by the Kellogg test. There were, in addition, seven combined positives that were correctly read according to the other test.

That the guinea-pig method gives the true immune status of the subject will hardly be disputed by any one who attempts to solve the problem of what, besides antitoxin, can prevent a necrosing dose of toxin from producing that effect in the skin of a guinea-pig.

All tests were controlled by inoculating toxin mixed with salt solution instead of serum.

SUMMARY AND CONCLUSIONS

1. The test described is conclusive as showing either the presence or the absence of immunity to diphtheria.

2. Controls are possible which guard against deteriorated toxin and false negative reactions.

3. False negative reactions with the technic described are believed to be an impossibility.

4. Protein reactions do not occur.

5. The test is a central laboratory one, relieving the physician of the responsibility for the interpretation of the doubtful reactions so frequently observed in the Schick test.

6. The test is the one of choice for practitioners having occasion to test a few persons at a time. The disadvantage of the Schick test, under such circumstances, is that no control against false negatives from deteriorated toxin exists.

7. The test is not recommended as a substitute for the Schick test, when large groups are being examined, for the reason that the collection of a large number of blood specimens would be too time consuming, excepting with adults and older children with whom venipuncture can be used.

INFLUENCE OF ALCOHOL ON PROGNOSIS OF PNEUMONIA IN COOK COUNTY HOSPITAL

A STATISTICAL REPORT

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In this paper we propose to consider to what extent the use of alcohol affects the course of lobar pneumonia. The influence of alcohol on longevity has been the subject of extensive studies in recent years by the insurance companies. These companies do not, of course, accept persons who admit the excessive use of liquor, and their comparisons, therefore, are between abstainers and moderate users. Dr. Rogers of the New York Life shows that in several large companies the mortality runs 32 per cent. higher in the group of moderate alcohol users than in the group of abstainers. The statistics of the Midwestern Mutual show that if abstainers are rated at 100 per cent., the mortality of moderate or occasional users of alcohol is 119 per cent.; that of daily users of beer is 133 per cent.; that of daily users of spirits is 166 per cent. The New England Mutual reports the startling comparison of 100 per cent. in abstainers to 213 per cent. in moderate users.

Carefully prepared and impressive as these figures are, we must make allowance for a certain error arising from the reluctance of the applicant for insurance to tell the whole truth concerning his habits. The abstainer has nothing to hide, but the user tends to minimize the amount that he drinks.

The physician in practice, on the other hand, enjoys the confidence of his patient and is able to obtain more reliable information on this matter. Our data are obtained exclusively from the histories of lobar pneumonia patients at the Cook County Hospital. We have studied the records covering eight years, six years before prohibition, 1911 to 1917, and two years after prohibition, 1921 to 1922. The intermediate years were purposely omitted on account of the streptococcus and influenza epidemics that produced atypical forms of pneumonia. It is a matter of common knowledge

that cases of classical lobar pneumonia were comparatively few until the year 1921.

THE GROUPING OF CASES

We found it feasible to place in the first group the abstainers and those who used less than two glasses of beer daily, or who used spirits occasionally. The second group included those who drank regularly two or more glasses of beer, or one or two glasses of spirits. The third group embraced those who drank regularly a large amount of beer or spirits, or who became intoxicated at times. Thus, it will be seen that our first group includes many persons who would be classified as moderate users by the insurance companies, and our third group is made up of men who, for the most part, would be ineligible for insurance because of their excesses.

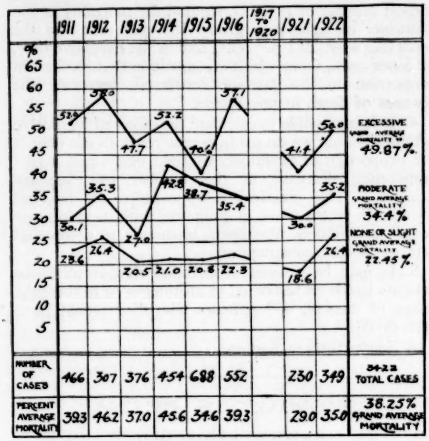


Chart 1.—Yearly mortality in each group.

GENERAL AGE AVERAGE YEARLY IN EACH GROUP

	1911	1912	1913	1914	1915	1916	1917-20	1921	1922	Grand Aver.
None or slight.	35.3	32.3	33.5	32.8	38.4	37.9	—	33.6	36.7	35.06
Moderate.....	40.4	39.3	40.2	42.0	41.1	41.1	—	38.4	40.9	40.46
Excessive.....	42.1	42.8	43.1	42.2	42.7	45.4	—	43.4	43.9	43.20
Average.....	39.2	38.1	38.9	39.0	40.7	41.5	—	38.4	40.5	39.57

In our compilation we excluded all cases in which a clear statement was not recorded concerning alcoholic habits. A majority of such patients were brought to the hospital in such a toxic or moribund condition that no intelligent answers could be obtained. The proportion of alcoholics among these patients was undoubtedly very high, and their mortality more than 56 per cent. So we may be sure that the elimination of these patients who gave no definite information concerning their habits has reduced the actual mortality incidence of the third group of excessive drinkers.

Only male patients have been tabulated, and none were recorded under the age of 18. This comprises 3,422 cases of lobar pneumonia, 884 of which were in the first group, 1,095 in the second group, and 1,443 in the third group. Chart 1 gives the mortality rate of the three groups in each of the eight years. The grand average for all the years of the first group of abstainers and light users is 22.45 per cent.; the average of moderate users is 34.4 per cent.; the average of excessive users is 49.87 per cent.

A natural objection may be raised to accepting these figures at face value on the ground that excessive users are likely to be older than the moderate or light users, and that this difference in age may explain the increased death rate.

We found the average age of the first group about 35 years; of the second group of moderate drinkers, about 40 years, and of the excessive group, about 43 years.

Chart 2 has been constructed with a view to showing the death rate by decades in each group. For example, one sees that in the period between 18 to 29 the mortality percentage of the first group was 13.6, as compared with 18.1 per cent. in moderate, and 28.6 per cent. in excessive users. In the decade 30 to 39, the percentages were 18.4, 29.1 and 42.5; in the decade 40 to 49, 24.6, 38.6 and 50.9; in the decade 50 to 59, 40.2, 51.8 and 62.7; over 60 years, 49.3, 57.7 and 68.4.

We may assume that in this comparison the age factor is entirely eliminated, as we compare the death rate of the three groups only at similar ages.

Not only does the use of alcohol increase the death rate, but the increase maintains a remarkably constant ratio to the amount of liquor consumed.

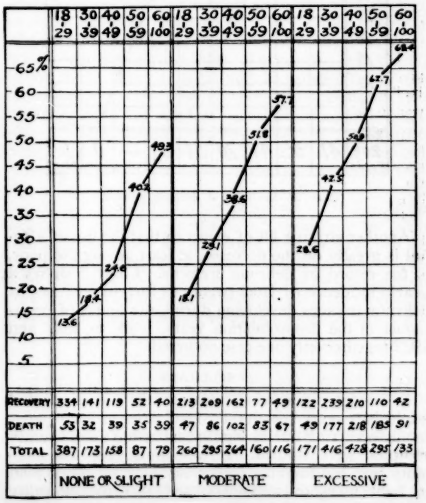


Chart 2.—Mortality by decades in each group.

It is interesting to observe there are 1,095 cases in the moderate group and 1,443 cases in the excessive group, a total of 2,538, with a mortality of 1,105. The mortality, calculated on the basis of the figures obtained for the group of abstainers or light users, would be 666. In other words, 439 of these deaths in the last two groups may be attributed to the use of alcohol in moderate or excessive quantities.

DECREASE IN THE USE OF ALCOHOL

Do these data prove that prohibition legislation is lessening the death rate of pneumonia? They do not. They demonstrate only what a harmful effect the use of alcohol has on the course of the disease. They do not tell us whether legislation has or has not diminished the prevalence of drinking.

There are some interesting facts, however, that have a bearing on the results of legislation.

In the six years antedating the enforcement of the eighteenth amendment, only 21.6 per cent. of all the pneumonia patients were in the first group of abstainers or light users, whereas, in the two postamendment years, the number arose to 39 per cent. Similarly, in the preprohibition years, the excessive users constituted 46.8 per cent. of the whole number, while in the post-prohibition years they had fallen to 23 per cent. It was noted also that the amount of alcohol consumed by the persons in this group in recent years was far less than formerly. The tendency to drink less was already in evidence in the years 1915 and 1916, for reasons not explained.

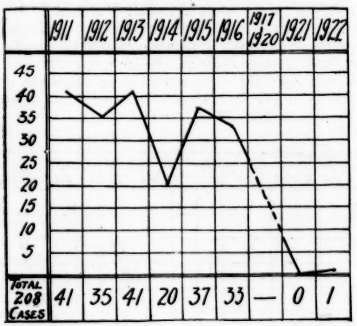


Chart 3.—Incidence of delirium tremens.

Another striking bit of evidence that the use of alcohol is greatly on the decrease, at least among the poor, is the record of delirium tremens. Chart 3 shows a yearly incidence of from twenty to forty-three cases of delirium tremens developing during the course of pneumonia in the preprohibition years, while in 1921 and 1922 together only one case occurred.

SUMMARY

1. To determine what influence the use of alcohol might have on the death rate, 3,422 cases of lobar pneumonia occurring during eight years at the Cook County Hospital were studied. It was found that the mortality was considerably higher in moderate users than in light users or abstainers, and that the mortality in excessive users was much higher than in moderate users.

2. The average age of the moderate group was about five years greater than that of the abstainers or light users, and the average age of the excessive group was three years more than the moderate. The maximum range between the first and third group was eight years. This would therefore explain a certain increase of mortality in the second and third groups over that in the first group.

3. To eliminate the age factor entirely from the problem, the mortality rate was reckoned separately in each group by decades. A comparison of the death rate in the same decades of the three groups shows a remarkable increase of the moderate users over the light users or abstainers, and a still greater increase of the excessive users over the moderate. Taking, for example, the decade 30 to 39 years, embracing the largest number of patients, we find the mortality in the abstainer or light user group 18.4 per cent.; in the moderate user, 29.1 per cent., and in the excessive user, 42.5 per cent., from which we conclude that alcohol, in proportion to the amount consumed, increases the chances of death in pneumonia.

4. It is impossible to calculate the effect of legislative prohibition, but we do see in recent years an increase in the proportion of abstainers or light users, and a corresponding decrease in the number of excessive drinkers. The practical disappearance of delirium tremens in recent years, as compared with its frequency before prohibition, also bears testimony to a lowered rate of alcohol consumption.

5. It may be properly concluded that if all these patients had been restricted to abstinence or to the light usage of alcohol, 439 patients who died would have been saved.

122 South Michigan Avenue.

SECONDARY OS CALCIS*

ARTHUR KRIDA, M.D.
NEW YORK

This case is reported because it appears to be the first case in the literature in which this accessory bone was implicated in a traumatism of the foot.

REPORT OF CASE

J. J. Mc., aged 30, an electrician, sprained his right ankle in April, 1921. I saw him three months later, at which time he was still complaining of pain and disability in the right foot. He localized the pain on the dorsum, in front of the external malleolus. He stated that occasionally a swelling appeared in this situation after use.

He walked with a slight limp. There was considerable tenderness on the dorsum in front of the external malleolus. Occasionally a crepitus could be elicited in the anterior subastragaloid region. The mobility of the subastragaloid region was moderately restricted.

A roentgenogram in the lateral view showed what at this time was interpreted as being a fracture through the processus anterior calcanei with avulsion of the distal fragment. The roentgenographic appearance of the left foot was not peculiar.

During the ensuing year, I saw the patient several times. He had had several recurring sprains with periods of disability. The findings on each examination were substantially as outlined above.

At this time, I arrived at the conclusion that, instead of a fracture, the loose bone shown in the roentgenogram was a secondary os calcis, which had become loosened in its situation, and which predisposed this region of the foot to recurring sprains by reason of its instability.

Aug. 15, 1922, I operated on this foot at the Hospital for the Ruptured and Crippled. The dissection was begun at the outer border of the calcaneocuboid joint. At about the middle of the dorsum of this joint, a small quantity of loosely organized cancellous bone was found lying on top of the joint ligaments. Further exploration inward disclosed the acces-

* Presented before the Orthopedic Section of the New York Academy of Medicine, Jan. 19, 1923.

sory bone shown in the roentgenogram, lying quite loose in its bed, and with very little attachment anywhere. This was removed.

The specimen was an irregular, three-sided pyramid whose greatest diameter was rather less than one-half inch. The base was nonarticular, and faced toward the processus anterior calcanei. The dorsal face was likewise nonarticular. The internal and external faces were covered with articular cartilage and articulated respectively with the head of the astragalus and with the cuboid. The apex and part of the lower border between the two articular faces were directed toward the scaphoid, but did not touch this bone.

The patient returned to his work, October 9. On examination, Jan. 19, 1923, he stated that his pain and disability had been much relieved, although there was still some tenderness in the middle of the operation scar. The scar was nonadherent, and the joint mobility was good.

COMMENT

Dwight[1] offers the most comprehensive original information on the subject of accessory bones of the foot in the American literature. In the great number of dissections that he made, he apparently found only two examples of a separate bone in this situation. Since the entire material relating to secondary os calcis is contained in a single paragraph, it is quoted in full (page 17):

"The secondary os calcis is very puzzling, inasmuch as the term seems to be applied to two distinct structures. The most typical one forms the very front of the sustentaculum, and is usually a small bone with a convex posterior border fitting accurately into a corresponding concavity in the front of the sustentaculum. The other nontypical form (which I cannot feel sure is really the same), is a *nonarticular*, rough, ill-defined *projection* from the front and top of the os calcis, pointing toward, if it does not reach, the space between the scaphoid, cuboid, and head of the astragalus. It is apparently by an overdevelopment of this process that the os calcis and scaphoid are occasionally brought into contact. Once I have seen, in a very pathological foot, what looked like a bone in this place which earlier had been distinct, but had been absorbed into the os calcis."

Fig. 1.—Secondary os calcis from above and from the side.

Figure 50, Plate XXII, is a roentgenogram of a clinical case showing a secondary *separate* os calcis in both feet. These feet were not dissected. Figure 51 is a photograph of a dissected specimen, showing a *separate* bone, with the following comment. . . . "Unfortunately, the way it was connected with the bone below it, whether by joint, cartilage, or ligament, is not noted. . . . It is very common in skiagraphs of the outer side of the foot to see a *projection* of the os calcis in this direction, which, if marked, would go on to join the scaphoid. It is very difficult to determine how much of this effect is due to bone and how much to the position of the plate." Figure 64 is another photograph of a *separate* bone, without descriptive matter.

Kleinberg,[2] in examining 350 roentgenograms, did not find a single example of a separate bone. He found seven examples (2 per cent.) of a projection of the os calcis, such as Dwight describes above.

Geist,[3] in examining 100 roentgenograms, found two examples of secondary os calcis, but whether or not as separate bones is not stated.

Fig. 2.—Specimen removed at operation.

Pfitzner[4] is the source of most comprehensive original information in the foreign literature. Prior to 1896, Stieda and Gruber, quoted by Pfitzner, had each reported a case encountered in the dissecting room. In Pfitzner's series of dissections of 840 feet, he encountered a separate secondary os calcis in the interval between the anterior end of the os calcis, the cuboid, scaphoid and astragalus, sixteen times (2 per cent.). The bones varied in diameter from 4 to 15 mm. The attachment to the os calcis was fibrous, but firm. In no case was there a joint here. The cuboidal and astragalar faces were commonly articular and covered with cartilage. The relation with the scaphoid was commonly by a free edge, without contact. In two cadavers, the condition was bilateral. In eleven instances, this was the only accessory bone in the foot under examination; there were four instances of association with a tibiale externum, and one with an os trigonum. Of the eleven cases of isolated occurrences of secondary os calcis, the other foot was not examined in three cases; of the remaining eight, four were accounted for in the bilateral cases mentioned above; in the remaining four, the other foot showed one instance of intermetarseum, one of talus accessorius, one of os trigonum, and one of tibiale externum.

CONCLUSIONS

From the clinical standpoint, the separate ossicle described by Pfitzner may be accepted as the typical secondary os calcis. Its occurrence in 2 per cent. of his large series of dissections need not lead to the expectation of finding it frequently in routine roentgenograms of the foot, as the smaller and less well developed specimens might easily escape demonstration.

It would seem that a well developed secondary os calcis, acting like a wedge in a series of complicated movements in the middle of the tarsus, would be peculiarly liable to avulsion or displacement.

116 East Sixty-Third Street.

1. Dwight, Thomas: Variations of the Bones of the Hand and Foot, Philadelphia, J. B. Lippincott Company, 1907.

2. Kleinberg, S.: Supernumerary Bones of the Foot: An X-Ray Study, Ann. Surg. **65**: 499 (April) 1917.

3. Geist, E. S.: Supernumerary Bones of the Foot, Am. J. Orthop. Surg. **12**: 403-414, 1914-1915.

4. Pfitzner: Die Variationen in Aufbau des Fussskelats, Schwalbe's Morphologische Arbeiten **6**, 1896.

PRIMARY TUMOR OF THE THYMUS ASSOCIATED WITH TUBERCULOSIS *

HENRY C. SWEANY, M.D.
CHICAGO

Ewing [1] classifies primary tumors of the thymus in three groups: (1) lymphosarcoma, or thymoma; (2) carcinoma, and (3) spindle-cell sarcoma (very rare). By far the greatest number fall within the first class. There seems to be considerable question whether the so-called carcinomas of the thymus are carcinomas or merely a variety of the first group. The lymphosarcoma of the thymus, or, more truly, the thymoma, presents a condition almost identical with that presented by the lymphosarcoma of the lymph glands. Clinically, they are indistinguishable; but histologically, there are certain well established differences, which may be roughly comparable to the differences between the structures of the lymph and of the thymus glands. The one

Fig. 1.—The tumor lying over the great vessels showing attachment to the chest wall, at the upper left.

outstanding point of difference in the primary tumor of the thymus is the fact that the reticular cells are larger and more nearly polyhedral, and they originate from the endoderm rather than from the mesoderm, as is true in the reticulum of lymph glands. Occasionally, the polyhedral cells may be very large and grouped, resembling Hassal's corpuscles. Varying numbers of giant cells, eosinophils and plasma cells may be present.

REPORT OF CASE

E. P., a man, aged 40, entered the Municipal Tuberculosis Sanitarium with moderately advanced pulmonary tuberculosis, tubercle bacilli having been found on several occasions in the sputum. Four months afterward, a small tumor developed, 1 inch to the right of the midline, between the second

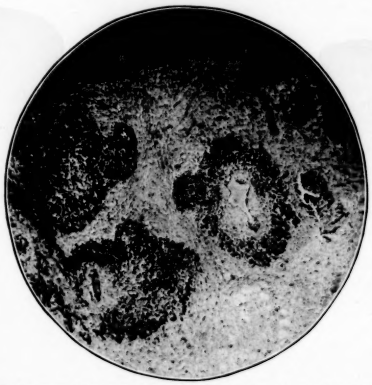


Fig. 2.—Perithelioma-like appearance due to loss of staining power of cells away from blood vessels. This condition is more marked in the older portions of the tumor (low power).

and the third rib, which, on section, was found to be sarcoma. The condition developed rapidly, death ensuing within six weeks. Necropsy revealed a tumor of the thymus gland, extending around the great vessels in crablike fashion. Direct extension of the tumor through the anterior chest wall was also found. Metastasis to the tracheobronchial lymph glands and the liver had occurred. A small tuberculous cavity, 1 cm. in diameter, and a few caseous and calcified tubercles, less than 0.5 cm. in diameter, all found in the right apex, were the only indications of tuberculous involvement that could be found.

The tumor was 11 by 3.5 cm., flat on the anterior surface and irregular on the posterior. The posterior surface conformed to the outlines of the great vessels. At the upper right portion, there was a circular elevation, 0.5 cm. high and 1.5 cm. in diameter, marking the attachment to the anterior chest wall. On section, the tissue was firm and offered resistance to the knife. In this respect, it resembled a pancreas in which there is considerable fibrosis. Microscopically, the type of cell varied slightly in the different portions of the tumor. In the portion penetrating the chest wall were many large polyhedral cells, with about an equal number of intervening round cells. There were a few plasma cells, and rather infrequently there was a giant cell. In the tumor proper and in the parts involved by metastasis, the polyhedral cells were predominant. They were joined more or less to each other by cell processes. There were many blood vessels throughout the tissue, immediately surrounding which the cells stained deeply. More remotely their staining power was lost completely.

Certain authors [2] place tumors that have the large polyhedral cells as the principal element among the carcinomas, because of the size and origin of the cells. While this may be correct histologically, it seems that the character of growth and the extremely rapid clinical course would permit as well of their classification with the lymphosarcomas. Authorities seem to be divided

* From the Laboratories of the Municipal Tuberculosis Sanitarium.

1. Ewing, James: Neoplastic Diseases, Ed. 2, Philadelphia, W. B. Saunders Company, 1922, pp. 917-920.

2. LeTulle: Arch. gén. de méd. 2: 641, 1890.

on this point. Ewing [1] quotes from reports of Dansac, Hauser and Rubaschow, who alike state that both round and polyhedral cells may be found together in the same tumor. Such appears to be the condition in the one here described. Ewing further states that, on the one extreme, there are the tumors resembling Hodgkin's granulomas, with lymphocytes, reticulum, giant, plasma and eosinophil cells. On the other extreme, there are the pure tumors of rounded or polyhedral reticulum cells. If there exists a true resemblance to Hodgkin's granuloma in the pathologicophysiologic action, there should be the usual difference in the clinical manifestations, which would assist materially in an early classification of the tumor. The only point of difficulty here would lie in differentiating this type of tumor from a true Hodgkin's granuloma of the mediastinal lymph glands—a point of only academic interest.

The most important question that arises in this instance is the relation of the tuberculosis to the tumor formation. Many of these tumors are said to be of granulomatous origin. It is, therefore, not unreasonable to suppose that the tuberculosis, though in itself insignificant, incited the cells of the thymus to malignancy.

The course of this type of tumor is typical. They cause death within a short time. There are no successful means of treatment; measures taken are merely palliative. The tumors are, therefore, not difficult to differentiate from any other glandular involvement of the mediastinum, with the possible exception of the type that resembles Hodgkin's granuloma. They grow by

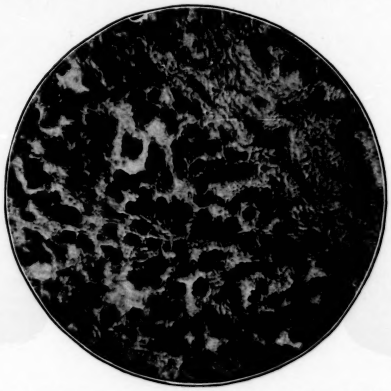


Fig. 3.—Oil immersion photograph of the edge of the tumor showing the polyhedral cells, with very few lymphocytes.

direct extension more than by metastasis; and furthermore, they differ from lymphosarcoma, embryologically and histologically, but not clinically.

5601 North Crawford Avenue.

The "Cure" for Tuberculosis.—The history of tuberculosis reveals a record of attempts at cure which reflects little credit on the medical profession, and it well illustrates the waste of energies wrongly directed. Instead of strenuously seeking to understand the nature of the patient's ill health, modern medicine is content still to flounder along in the vain search for "a cure."—Sir James Mackenzie, *Brit. J. Tuberc.* **17**:15 (Jan.) 1923.

NOAH WEBSTER AS EPIDEMIOLOGIST

ALDRED SCOTT WARTHIN, M.D.
ANN ARBOR, MICH.

Oct. 16, 1758, there was born, in the best front room of a farmhouse, in the primitive farming village of West Hartford, Conn., a male infant destined to play a very important part in the intellectual development of "these United States of America." Noah Webster is known today, by name, to every high school student in this land, because no American High School is without a copy of "Webster's Dictionary." But he is known by name alone as the "great lexicographer and philologist," and even his legitimate posterity, as a class, the pedagogues, accord him in their minds no higher place than that of a compiler of a dictionary. Yet Webster might well, nay, should, be ranged with the Fathers of this nation, since perhaps no other single individual of Revolutionary times contributed more to the welding of the diverse colonial states into a national solidarity than did this New England schoolmaster. For he gave to the developing confederation of states a unity of speech, a common mode of expression of thought, without which there can be no national harmony. And Noah Webster accomplished this chiefly by means of his "American Spelling Book," the first edition of which he published in 1783, at the age of 25, bearing himself the expenses of the printing. Forty-five years later came the fruition of his labors for the unification of the American language in the publication of his great "American Dictionary." On this philological achievement alone his claims to fame might rest securely, but a survey of his long life of extraordinary mental activity reveals an astounding record of scholarly accomplishment in many lines.

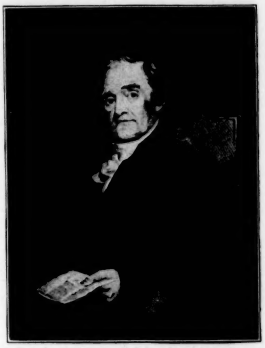


Fig. 1.—Portrait of Noah Webster, engraved by Halpin from the painting by Jared Flagg. (From Scudder's Life of Noah Webster.)

He entered into every field of activity in the cultural development of the young American nation, and in every field he left some mark of his influence. Little of this is known to the average American citizen of his generation, and still less, perhaps, is the part he played in the early medical history of this country known to the medical profession of today. Although not a medical man himself, he made a scholar's sally into the arena of medical disputation, throwing himself with all of his enthusiastic ardor, backed by his scholarly knowledge of the world's literature, into one of the most bitter medical fights ever waged in this country—the argument concerning the origin of the epidemics of yellow fever, from the occurrence of which the young nation so frequently suffered at that period. The main result of this bold excursion into the realm of medicine—much bolder then than it would be

regarded today—was a two-volume work on "The History of Epidemics and Pestilential Diseases," the first American work on general epidemiology, and for the production of which he might well be called the father of American epidemiology, should we wish to enchance his claims to a place among the national fathers.

THE SPELLING BOOK AND THE GRAMMAR

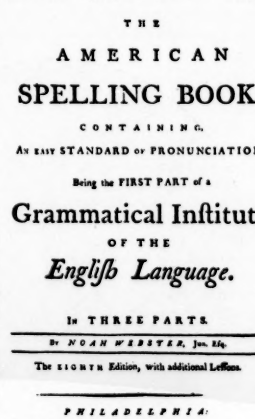
How the curious happening of a lexicographer writing an ambitious work on epidemiology in the closing years of the eighteenth century came about

Fig. 2.—Birthplace of Noah Webster. (From the illustration in the "Life of Noah Webster," by Emily E. F. Ford, New York, 1912.)

can be properly understood only in its relation to Webster's whole life story. If there ever was a man through whose entire life, from early manhood to ripe old age, there ran one unceasing purpose, that man was Noah Webster. He was one of those predestined souls born with a mission to fulfil, and the accomplishment of this ideal became almost an obsession. He bent his whole life to that end. His career as an epidemiologist made but a short length in the full chain of his life, and is explainable only as a part of that whole. In 1782, when 24 years of age and only four years out of college, he began his life-work by the compilation of his "Spelling Book," and his "Grammar," as the first two parts of an ambitious "Grammatical Institute of the English Language," the third part of which was to be a reader. Only the first two parts of this educational trilogy achieved immediate publication, and only the first one a great success. It may be considered the first published American book, and its publication led to the passing of the first American copyright laws. Listen to this extract from its introduction:

> The author wishes to promote the honor and prosperity of the confederated republics of America, and cheerfully throws his mite into the common treasure of patriotic exertions. This country must, at some future time, be as distinguished by the superiority of her literary improvements as she is already by the liberality of her civil and ecclesiastical constitutions. Europe is grown old in folly, corruption and tyranny; in that country laws are perverted, manners are licentious, literature is declining and human nature debased. For America in her infancy to adopt the present maxims of the old world would be to stamp the wrinkle of decrepit age upon the bloom of youth and to plant the seed of decay in a vigorous constitution.

Such was the patriotism of a Yankee schoolmaster, at the age of 24, in the year 1782, six years after Lexington and Concord, and only one year after the surrender of Cornwallis. Does such a youthful expression of nationalism sound bombastic to the youth of 1922, five years after the European debacle? Webster was a typical product of Revolutionary times, of Puritan and Pilgrim stock, his immediate ancestors holding positions of authority in the religious and civil life of the developing colony of Connecticut. Born under the poignant influences of the "Old French War," his boyhood was passed on a primitive Connecticut farm to which the news of the stirring events of the gradual separation of the colonies from the mother-country must have come with greatly intensified force, exerting an especial influence on the youthful minds so isolated. Of the actual story of his boyhood up to the age of 14, we have only family traditions. It was said that he was especially fond of words. His early education must have been that accorded to all New England farmers' boys of Colonial times—"the nurture and admonition of the Lord," with the material assistance of Dilworth's Spelling Book, the Psalter and the Testament, the only educational facilities possessed by the New England district schools. We find him at 14, after this preliminary education, with such a decided love for study and books that he was led to take more interest in a Latin grammar than in the tasks of the field. But he had a wise father who appreciated his son's preference for study, and gave him such preparation for college as the times afforded. In 1774, at the age of 16, he entered Yale, his father mortgaging his farm to pay his son's college expenses. In the spring of his freshman year the stirring events of Lexington, Concord and Bunker Hill aroused the patriotism of the Yale youth as it did that of all New England. When General Washington passed through New Haven on his way to take command of the army at Charlestown, Webster was one of the welcoming musicians in the escort of Yale students.



THE
AMERICAN
SPELLING BOOK:
CONTAINING,
AN EASY STANDARD OF PRONUNCIATION.
Being the FIRST PART of a
Grammatical Institute
OF THE
English Language.
IN THREE PARTS.
By NOAH WEBSTER, Jun. Esq.
The EIGHTH Edition, with additional Lessons.
PHILADELPHIA:
Printed by W. YOUNG, Bookseller and Stationer, at the Corner of Chefnut and Second-ftreets.
M,DCC,LXXXVIII.

Fig. 3.—Title page to the American Spelling Book, Edition 8, Philadelphia, 1788.

The distractions of the Revolution and the condition of the country affected his course in Yale; the classes were separated and quartered in different towns, and little is known of the part played by individual students, and of their rank and honors during the next seven years. Webster graduated in September, 1778, in a class of forty, one of the most notable that ever came from Yale for the number of distinguished men it produced. The education that these men received was a very limited classical one, but they took it seriously, and the duty of the citizen toward the common good,

as emphasized in the ancient classics, stimulated their patriotism and strengthened their ideals of service to their own troubled country. Reared and educated in such an atmosphere of patriotic fervor, Webster was marked for life by its influences, and the desire to aid in the intellectual and moral development of the young American nation became in his mind an obsessing passion; it dominated all of the endeavors of his long and vigorous life, persisting to its close. His conception of national service was a great one, and he clung to it in spite of the greatest obstacles and discouragements,

To diffuſe an uniformity and purity of language in America---- to deſtroy the provincial prejudices that originate in the trifling differences of dialect and produce reciprocal ridicule—to promote the intereſt of literature and the harmony of the United States— is the moſt ardent wiſh of the author; and it is his higheſt ambition to deſerve the approbation and encouragement of his countrymen.

Fig. 4.—Foreword to the American Spelling Book.

bending all of his unfailing energies, with courage undiminished, toward the accomplishment of his ideal. Through all of his enterprises there may be traced the thread of his great purpose, and that was the improvement of the intellectual and moral life of the independent American people.

He had selected the law as his profession, but the poverty of the country after the Revolution made it impossible for him to gain a living through legal practice. Immediately following his graduation, his father had presented to him an eight dollar continental bill, worth about fifty cents on the dollar, with the remark that he could do no more for him. It is recorded that Webster shut himself up in his room for three days, considering his future, and reading Johnson and the *Spectator* for spiritual consolation. How significant this seems when viewed in the light of his future career! He later in his life spoke of the deep and permanent effect produced on his mind by Johnson's "Rambler." There was nothing for the poverty-stricken young man to turn his hand to for immediate means of obtaining a livelihood but teaching school, so Webster became a Yankee schoolmaster, continuing his own studies at the same time, taking his Master's degree at Yale in 1781, and obtaining admission to the bar in Hartford. The very fact that the disturbed condition of the country prevented any prosperous career in law, and turned him to teaching was probably the decisive turn of fate that determined his career as a lexicographer. His own intrinsic love for words and language, his classical education, the patriotism engendered by the conditions of the times, the separation of America from Great Britain, and the influence of Franklin made him dissatisfied with the educational material then in use. The chief implement of the schoolmaster of the day was Dilworth's Spelling Book, originally designed for the charity schools of England and Scotland. Webster found this especially unfit for American use, and out of this dissatisfaction there gradually developed an ever-growing conviction of the need for a separate American literature and education. And so the spark of the divine fire of a creative plan was kindled. "America must be as independent in literature as she is in politics, as famous for Arts as for Arms," and so the famous Speller was born, with an American flavor all its own, and arranged much more logically and with greater common sense than its English predecessor. The times were ripe for it, and it had an immediate success. On this success his whole future career was founded.

EARLY ACTIVITIES

A growing sense of the value of his own ideals led him now into a life of the most varied activities. As early as 1785 he wrote in his journal, "I have begun a reformation of the language, and my plan is yet but in embryo." He wrote dissertations, and gave subscription lectures on the improvement of the alphabet and the American language, throughout the chief cities of the federated states, even to Charleston, South Carolina. He met and corresponded with Franklin, Washington, Benjamin Rush and other leading minds of the period, and impressed them with his views on these matters. Franklin especially was drawn toward the youth, and later endeavored to have him carry out his ideas of spelling reform. At one time Webster contemplated becoming the private secretary of George Washington, but dropped the matter as he feared that his time for intellectual activity on his own part would be too restricted.

He founded and edited newspapers and magazines, and wrote constantly for the public press on every subject of general interest to the nation, particularly on methods of improving the general system of education. He entered into politics; impressed with the weakness of the Confederation, his political efforts were in favor of a stronger and more centralized form of general government. In 1788 he proposed to Benjamin Rush a plan to found a literary and political magazine in Philadelphia. It materialized in New York instead, in the form of the *American Magazine*, with the motto "Science the guide, and Truth the

FABLE I. *Of the Boy that ſtole Apples.*

AN old Man found a rude Boy upon one of the Trees ſtealing Apples.

Fig. 5.—Example of the wood-cut illustrations of the American Spelling Book, Edition 8, 1788.

Eternal God." It lasted but a year, and the venture ended in considerable financial loss to him. His plans were far ahead of the possibilities of the times so far as both literary and financial support were concerned. In New York he founded the Philological Society. In Boston, in 1789, he published "Dissertation on the English Language," which he dedicated to Franklin. Characterized by their strong national spirit, these essays were written with the ideal "Our political harmony is therefore conceived in a uniformity of language." In 1790 he published a volume of moral tales and fables anonymously, in Hartford, under the

name of "The Prompter." Written in the style of Johnson's "Rambler" and in the manner of Franklin, with the motto "To see all others' faults and feel our own" these lively and pointed essays had a great popularity, and were copied into all of the journals throughout the country. At least fourteen legitimate editions were printed of this little volume of essays, and it was extensively pirated both in this country and in England, where it was pronounced to be "a very good shilling's worth publication." In the same year he also published anonymously an edition of Governor Winthrop's Journal, showing his early recognition of the value of the preservation of the records of early colonial history. In this enterprise, as in others, Webster was a pioneer, and showed an intellectual judgment and vision far ahead of his time. Into "The Little Reader's Assistant," published this year, he introduced a "Federal Catechism" in explanation of the Constitution of the United States and of the principles of government and commerce, the first attempt to introduce instruction on matters of civil government into the common schools. In the same year he published also a "Farmers' Catechism."

This brief recapitalation may seem to show the multiplicity of his activities and the catholicity of his interests during the first thirty-two years of his life. Nothing affecting the life of the American people during this time escaped his interest and active attention. Their language, education, politics, political economy, morals, religion, laws, vital statistics, agriculture and general culture all received treatment at his hands. Naturally, a man who could give intelligent discussion and treatment of so many diverse matters would arouse resentment because of that very ability. It was a primitive society, with a thinly spread and localized culture. The nation was making history too rapidly and the development of literature and the arts lagged very far behind. Local feelings were predominant; Philadelphia vaunted itself, not only as the seat of the government, but because of its literary superiority and still other excellences. Benjamin Rush, writing to Webster in 1788, said: "I object to your printing it in New York. Philadelphia is the primum mobile of the United States. From habit, from necessity and from local circumstances, all the states view our city as the capital of the New World." The union of the colonial states was an economic and political one, and a broader national spirit and culture, a national tie—the very ideals for which Webster was working with all of his might—did not yet exist.

The Deſcription of a BAD BOY.

A Bad Boy is undutiful to his father and mother, diſobedient and ſtubborn to his maſter, and ill-natured to all his play fellows. He hates his book, and takes no pleaſure in improving himſelf in any thing. He is ſleepy and ſlothful in the morning, too idle to clean himſelf, and too wicked to ſay his prayers. He is always in miſchief, and when he has done a fault will tell twenty lies in hopes to clear himſelf, which is only making bad worſe. He hates that any body ſhould give him good advice, and when they are out of ſight, will laugh at them. He ſwears and wrangles, and quarrels with his companions, and is always in ſome diſpute or other. He will ſteal whatſoever comes in his way; and if he is not catched, thinks it no crime, not conſidering that God ſees whatſoever he does. He is frequently out of humor, and ſullen and obſtinate.

Fig. 6.—Description of a bad boy, from the American Spelling Book, Edition 8, 1788.

THE DICTIONARY

Webster possessed an idea—a great idea—which he kept constantly in mind and presented on all possible occasions. The patriotic ardor, the self-assertiveness and aggressiveness of this crude Yankee youth were taken by many for self-conceit and vanity. He was nick-named the "Institute," the "Monarch"; his *reformed* spelling was called *deformed* spelling. Particularly were the Boston literati offended by Webster's belief in himself and his national ardor and enthusiasm. Ebenezer Hazard, later Postmaster General, wrote to Jeremy Belknap of Webster: "He certainly does not want understanding, and yet there is a mixture of self-sufficiency, all-sufficiency, and at the same time a degree of insufficiency about him which is intolerable." And Belknap, writing to Hazard, calls Webster "critick and coxcomb general of the United States." With the unpleasant attitude of these smaller men may be contrasted that of the larger minded master spirits of the time in Philadelphia—Franklin, King, Hopkinson, Dickinson, Benjamin Rush and others who had encouraged him with their approval of his schemes and plans for educational reforms, and asked the aid of his pen in furthering theirs in developing the policies of the government.

Through these youthful years of varied achievements, undaunted by his poverty or the opposition of his critics, the growing conviction in Webster's mind of the need of a separate American literature and education fanned the divine fire of his creative plan for the writing of a complete "American Dictionary of the English Language." He began his labors on this in 1800, and although in the meantime he published abridged forms, the first great quarto of the complete form was not published until 1828. More than twenty-five years of the most exacting and painstaking labor did he give to this great work. We are amazed when we consider the magnitude of his conception, and the tremendous difficulties in carrying it out. The limitations of his own education, the poverty of the library facilities of the United States, the general paucity of American scholarship, his own financial condition—all of these potent arguments against so extravagant a plan deterred him not a whit. He intended his dictionary to be not only a manual of words but an every-day encyclopedia. Through all of his intensive literary labors in acquiring a working knowledge of new languages, in word-hunting, synopsis-writing and definition-coining he was animated by his ideal of giving to the people of the United States "one language and one tongue." The broad interest which he maintained in the life of the nation, in its politics, in civic affairs, in theology and in other matters constantly revivified him, and gave him courage to persist in his heroic labors.

Yet his Journal and the letters of these years reveal periods of discouragement. In 1809, he writes: "I have accumulated such a mass of materials for a dictionary, materials which no other person could use to advantage, that I think it my duty, as it is my pleasure, to prosecute the work." His financial difficulties became greater. In 1812 he moved his family from New Haven to Amherst, Mass., that his living expenses might be cheapened, and that he might have more undisturbed time for work on his dictionary. In his study, a large front room looking out upon the hill, later to be the seat of Amherst College, he worked at a

large table on which were spread his works of reference, passing around the table from one volume to another, collating the radical words in twenty different languages, including the seven Asiatic tongues of the Assyrian stocks. A knowledge of Sanskrit, unfortunately, he was not able to acquire. During all of this labor he became interested in the development of the Amherst Academy, and in 1818, while Webster was president of the board of trustees, there was organized the institution which became the kernel of Amherst College. During these years of literary toil he developed a fine garden about his home, in which he cultivated vegetables, fruits and flowers with equal pleasure and success.

In 1820 he writes that he had expended nearly $25,000 of his own, and $1,000 of subscribers' money toward his dictionary labors. We shall soon see where his own money came from. By 1822, Webster had exhausted all the resources of the American libraries of his time. To finish the labor of years he must go to Europe and study for a time in the larger ones of France and England. And helped by his children, one daughter giving him $1,000, he, attended by his only living son, William, a lad of 22, went, at the age of 66, to complete and perfect his dictionary. He arrived in Paris in the first week of July, and completed his work there by September 13. He then went to Cambridge, where he remained, with visits to London, until his return to America in June, 1825. It is an amazing picture presented by the visit of this unknown American scholar to these seats of ancient learning, inspiring but pathetic. In Paris he had no acquaintance of literary or scholarly repute; he gained access to the Royal Library through the aid of Mr. Brown, the American minister. He writes, nevertheless, that he saw in Paris all of the books he wished to examine, save one, which he missed through his ignorance that the Royal Library was closed throughout the month of September. In Cambridge he knew but one man, Rev. Dr. Lee, to whom he had a letter of introduction. The same general indifference shown by English scholars and book-publishers to all American literary efforts was extended to him. From London he writes on Feb. 15, 1825, "I lived very little known in Cambridge, till the last three weeks, when I was invited to dine with the officers and fellows of Trinity College." This was followed by expressions of interest in his work from some of them, and regret that they had not been made acquainted with him earlier.

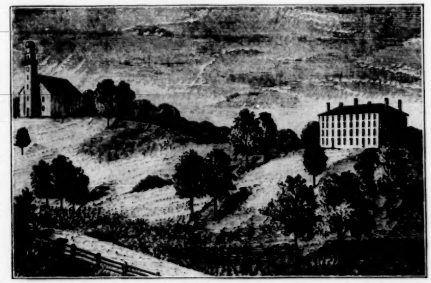


Fig. 7.—View of Amherst Hill from Noah Webster's study windows, at the time he was working on the dictionary. (From the History of Amherst College, by W. S. Tyler, 1873.)

His efforts to obtain from the scholars of Oxford and Cambridge a discussion of certain unsettled points in pronunciation and grammatical construction were of no avail. His letter to Oxford on this point was not even answered.

Nevertheless, he had accomplished the great object of his life. His opus magnum, the great Dictionary, was finished in Cambridge, in January, 1825. He wrote of this achievement: "When I had come to the last word, I was seized with a trembling which made it somewhat difficult to hold my pen steady for writing. The cause seems to have been the thought that I might not then live to finish the work, or the thought that I was so near the end of my labors. But I summoned strength to finish the last word, and then, walking about the room a few minutes, I recovered."

The American Dictionary in two volumes quarto was published in an edition of 2,500 copies, November, 1828, by Converse of New York, the printing being done by Hezekiah Howe of New Haven. The publisher had to send to Germany for the types of the Oriental languages; otherwise, the work was wholly American. Yet a writer in the Edinburgh *Review* had written spitefully: "In the four quarters of the globe, who reads an American book or goes to an American play or looks at an American picture or statue? What does the world yet owe to American physicians or surgeons?" This quotation became a title-page motto for the Philadelphia *Journal of the Medical and Physical Sciences*. But in 1832 an edition of 3,000 copies of Webster's Dictionary was published in England. It was seventy years since the publication of Johnson's Dictionary, and scarcely an improvement had been made in the various editions through which that classic had passed. In the first edition of Webster's Dictionary there were twelve thousand new words and over thirty thousand definitions not contained in any previous work.

We cannot take space here to speak of Webster's subsequent labors, his revised version of the Bible, and his later writings. In 1841, at the age of 83, the revised edition of his dictionary was published. He died in 1843, in his eighty-fifth year.

SOURCE OF INCOME

To return to the Spelling Book! Through all the years of labor on the dictionary it was the income from this little fifteen-penny volume, less than a cent a copy, that kept the fire going and the pot boiling, and made possible the achievement of the greater dictionary. It appeared just at the proper psychologic time. Seized upon by all of the young patriotic schoolmasters, of the early days of our Nation's life, it was carried from the hillsides of New England to all parts of the country, as the tides of migration and settlement flowed through the valleys of the Alleghenies, through Ohio and Indiana, to the oak openings of Michigan and the prairies of Illinois. By 1837 at least fifteen million copies had been sent into circulation, by 1865 at least 42,000,000. Between 1876 and 1890 the records of Appleton & Co. showed a sale of eleven and a half million copies more. The total legitimate sale must far have exceeded fifty millions, and in addition it was repeatedly published in pirated editions without acknowledgment to the author. This little book was undoubtedly an important factor in the primary education of a greater number of minds than any other single

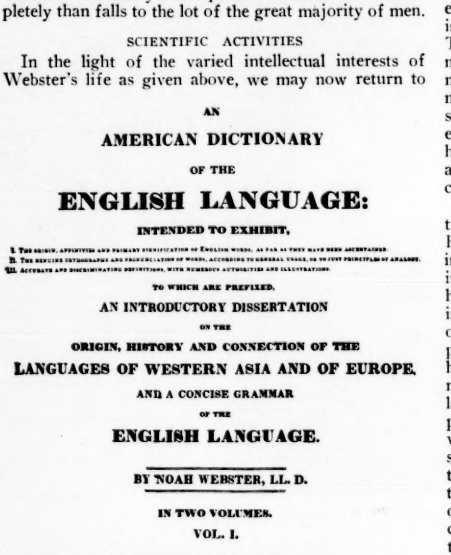
schoolbook used in America. Little wonder that one writer should say:

> It was well that Dr. Webster did believe in himself and his own work. His indomitable heroism has laid the foundation of a common tongue for the United States. They have one orthography and nearly one pronunciation. His little "Spelling Book" has in a measure prevented the dialects which exist in the counties of England and the patois of the departments of France, and his views of language have been some of the shaping and controlling forces all over our continent.

Webster had surely accomplished his ideal more completely than falls to the lot of the great majority of men.

SCIENTIFIC ACTIVITIES

In the light of the varied intellectual interests of Webster's life as given above, we may now return to



AN

AMERICAN DICTIONARY

OF THE

ENGLISH LANGUAGE:

INTENDED TO EXHIBIT,

I. The origin, affinities and primary significations of English words, as far as they have been ascertained.
II. The genuine orthography and pronunciation of words, according to general usage, or to just principles of analogy.
III. Accurate and discriminating definitions, with numerous authorities and illustrations.

TO WHICH ARE PREFIXED,

AN INTRODUCTORY DISSERTATION

ON THE

ORIGIN, HISTORY AND CONNECTION OF THE

LANGUAGES OF WESTERN ASIA AND OF EUROPE,

AND A CONCISE GRAMMAR

OF THE

ENGLISH LANGUAGE.

BY NOAH WEBSTER, LL. D.

IN TWO VOLUMES.

VOL. I.

He that wishes to be remembr among the benefactors of posterity, must add, by his own toil, to the acquisitions of his ancestors.—Rambler.

NEW YORK:
PUBLISHED BY S. CONVERSE.
PRINTED BY HEZEKIAH HOWE—NEW HAVEN.
1828.

Fig. 8.—Title-page of the first edition of the dictionary, New York, 1828.

a consideration of that part of his activities concerned with medicine. It is perhaps the one least known. Few physicians and fewer students of medicine today ever think of Webster the lexicographer as in any way connected with the history of American medicine. Yet in the closing decade of the eighteenth century he became for a number of years intensely interested in epidemiology, and in 1796 he published "A Collection of Papers on the Subject of Bilious Fevers, Prevalent in the United States for a Few Years Past." This was followed in 1799 by the two volume "History of Epidemics and Pestilential Diseases." It is the first American work of any pretension on general epidemiology, although preceded by various publications on the nature of certain epidemic fevers and catarrhs from the pens of some of the more prominent American physicians of that day. Webster's work was written with the idea of collecting all existent knowledge of the pestilences and epidemics occurring in the history of the world, with the definite plan of analyzing this knowledge in the attempt to find some common causal factor.

We have seen that Webster had received no scientific training of any kind, and he had at this time no close association with any medical man. He had met Dr. Rush and corresponded with him on the founding of a magazine, but not on medical matters. Yet between 1796 and 1802 he published two medical works and sent a number of letters and articles to medical journals. His name appears frequently in the indexes of the earliest volumes of the "Medical Repository," and he is quoted as an authority on epidemics as late as 1855. This sudden excursion, or intrusion, as some of his medical contemporaries regarded it, of a literary schoolmaster and lawyer into the field of medical inquiry may well seem an extraordinary phenomenon requiring some especial explanation. Was this just another example of Webster's know-it-all conceit, or did he have legitimate reasons for breaking into medicine as a vehement advocate of certain doctrines as to the causation of disease?

We are sure of one thing: that, although not trained in science, Webster possessed a scientific mind. He was a most keen observer, and intensely interested in natural phenomena. That we know from his Journal, in which he recorded from 1784 to 1820 the events of his daily life that seemed to him most interesting and important. It was but natural that in the earlier years of this diary "the ladies" formed a not inconsiderable portion of the material of his observations; but, after he achieved marriage, they gave place to comets, meteors, floods and storms, so that his journal became largely meteorological in character. He registered temperatures, precipitation and the character of the prevailing winds. It is recorded that when the French scientist Volney, in 1796, wrote a circular letter to the American press asking for information in regard to winds, Webster sent him observations extending over a period of eighteen years. Later in life he carried out a series of experimental investigations on the nature of dew, anticipating in his method and conclusions by about fourteen years the theories of Wells in London. There can be no doubt that he had a real and vital interest in natural phenomena, but he claimed nothing as a scientist.

To these powers of observation he added a decided statistical bent. When he visited a strange city, he took pleasure in counting the houses—1,950 in Baltimore in 1785, 3,500 in New York in 1786, 2,600 below Market Street in Philadelphia—one of our earliest census attempts, if not the first one. Bills of mortality had an especial interest for him. Apparently he was always much impressed by the sight of disease. As a boy in 1776, he visited the Revolutionary camps with his brother, and was so struck with their insanitary conditions that the picture remained clear in his memory until late in life, when he wrote, "We found about half the soldiers sick with dysentery and fever, so that the very air was infected." In his diary he mentions the births and deaths occurring in his immediate community, and also the cases of illness, often giving a concise but forcible description of the main symptoms. Though not medically educated, he had a wonderful natural power of clinical observation and a facility of description that would have taken him a long way had he elected to become a physician rather than a writer of dictionaries. He was an instinctive scientist, without

special scientific training or knowledge, except that acquired through his own reading. His manifold interests thus systematically practiced in his daily life made him anticipate in a humble way the census, the department of vital statistics, the weather bureau, the health board and the school board of modern times. No wonder that some of his contemporaries thought him "all-too-sufficient." Undoubtedly his youthful and vigorous enthusiasm exhibited along so many lines of mental activity made him appear conceited. That was inevitable, and so he appeared to some of his less gifted contemporaries. One does not, however, get such an impression of the man from his own writings. Far in advance of the times he saw the need and the importance of these statistical observations, and he carried them out, as far as he was able, consistent and true to his ideal of national service.

EXTRACTS FROM DIARY

From his diary we can take the following extracts as illustrating the points made above:

1784. January 21. Saw the comet in the evening and danced at Dr. Butler's.

February 18. At evening rode to Weathersfield with the ladies, who reminded us of the mile-stones and bridges.

19. P. M. Rode to East Windsor; had a clergyman with us, who sang an excellent song. Mile-stones and bridges almost totally neglected.

March 25. In the evening saw a multitude of pretty faces. But my heart is my own.

August 30. Saw an object of charity, a cripple. . . . His arms are small and without much strength, and so confined to his body that he can move his hand only: his legs are bent under, and grow to the thighs several inches from his knees; they are wholly useless. His body is nearly perfect, his health and his speech good; he is forty-eight years of age.

September 6. Divide my time between the ladies and my books.

1785. November 27. Take a view of the city (Petersburg), find about 300 houses; an unhealthy place.

1786. January 3. Number houses (Annapolis), 260: a pleasant city and more elegant houses in proportion than in any town in America; ground covered with verdure.

1788. April 11-14. At St. Paul's (New York). After church a mob collected at the Hospital and destroyed all the anatomical preparations, amounting to several hundred pounds value. The cause was the frequent digging up of dead bodies for dissection—the students of physic having been shamefully imprudent in taking up bodies of respectable people and without sufficient secrecy. Mob collects to the number of a thousand or two, attacks the houses of Dr. Kissam, Mr. Knight, Bailey, etc., break windows, enter and destroy furniture, etc. They then attacked the jail where some physicians were lodged for safety, a small body of armed men defend it. The governor and mayor insulted. . . .

1789. October 24. President Washington arrives in Boston, and all the world is collected to see him. I am almost confined with the influenza. This differs from a common cold, by affecting the eyes and taking away all taste. The head appears to be fastened with chains, and the disorder is attended with a cough. The best remedy is hot liquids to produce perspiration, or a sweat brought on by violent exercise in a warm room. But if the stomach is disordered and refuses diet, a puke is necessary.

1793. September 18. The first frost appears this morning, which after the hottest summer ever known, is very agreeable. The plague rages in Philadelphia, or a disorder like it. The dysentery and influenza common all over the country, but not formidable.

September 29. Public prayers ordered every afternoon on account of the fatal sickness in Philadelphia.

October 4. Rain. Circuit Court rise.

5. Cool. Vines first killed by frost.

6. Sunday. Pleasant. Cool.

7. Ditto. No favorable news from Philadelphia as to the fever; it still rages.

8. City Court. Pleasant.

9. Pleasant. Very warm.

10. Very warm like June.

11. Ditto; fever in Philadelphia carried off 159 in a day.

12. Cloudy.

. . . . . .

15. Wind changes. Cool.

16. My birthday, completing 35 years, half the life of man. Very cold.

17. Cold: disorder in Philadelphia abates.

INTEREST IN EPIDEMIOLOGY

The yellow fever epidemic of 1793, in Philadelphia, was the immediate cause of Webster's entrance into the field of epidemiology. The principal city was not only the seat of government, but also the intellectual center of the young nation. Webster had lived there for more than a year; he knew intimately its chief citizens, and corresponded with them. Among these was Oliver Wolcott, an ardent Federalist, Washington's Secretary of the Treasury after Hamilton, and later governor of Connecticut. He had been both classmate and roommate of Webster at Yale, and an intimate friendship existed between them for nearly sixty years.

September 19, 1793, he wrote to Webster, from Philadelphia:

> The dreadful malady which has raged for some time in this city has prevented me from writing before. Business of all kinds is nearly suspended, my imagination could never have conceived that a short time could have effected such an alteration in Philadelphia, as has taken place—every face is sad, all conversation is avoided except at a distance, a great part of the houses are shut up—and the citizens fled; the streets in the buisy parts of the city where I now write are as silent as at midnight. For the last two days the malady has much abated, but few are taken sick—but it will be some time, however, before the panic is over and business reassumed. Mrs. Wolcott and part of my family are in the country. I am here no more than absolute necessity requires. In a few days we shall begin to operate in an office, which I have concluded to open near the falls of Schuylkill.
>
> This account which I have given is not a highly coloured one, but it is meant only for *your self*. From your friend.

Webster's sympathies and mental activities were much aroused by the accounts of the Philadelphia epidemic. In a long letter to Wolcott dated October 10, 1793, he shows that he already had formulated ideas of his own in regard to the nature of pestilential diseases, and their origin. This letter is too long to quote in full, but it is of great importance in showing what a conception of disease an unusually intelligent layman of that day might possess:

By the last accounts from Philadelphia we learn that the raging malady still spreads and is more fatal. We are told also that the College of Physicians have pronounced it the plague. I am not acquainted with diseases of this kind, but I have an idea that the plague, the yellow fever of the West Indies, and the malignant fevers of our country, are all diseases of the same genus, differing in degree and virulence, according to the climate. I take them all to be, or to *proceed from* a tendency to a dissolution of the blood, or to putrefaction, or to use a chemical phrase, a decomposition of the parts which compose the system.

[He then goes on to point out relationships between these epidemic diseases and latitude, physical situation, climate, temperature, bad air, and accumulation of filth in a great city.]

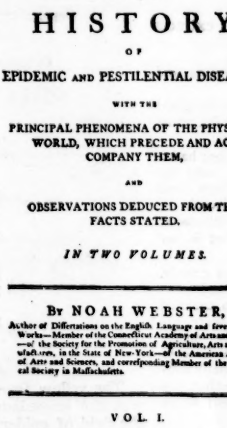
The great reason why the same parallels of latitude in America have not been subject to such putrid diseases hithertofore, I suppose to be our long cold winters. All the causes I believe to be of inferior force. Short cold rainy summers will hardly predispose the body to putrefaction. But the last winter was unusually open and warm, and the summer past for degree and continuance of hot dry weather, perhaps was never equalled in America.

[He writes of the daily public prayers offered, and of the desire of the citizens of New England to send relief to the suffering Philadelphians.]

We are not apprehensive of danger here, and no measures to restrain travellers have been taken. Though in Boston such measures are taken. . . . One question I beg you to answer, respecting the disease. Do people sicken and die with it, without being exposed to its contagion? If so, are such instances common?

He advises that the people retire to the country, and suggests that large streams of fresh water might be brought from the falls of the Schuylkill and made to flow through the streets. This letter indicates that he has not yet fully made up his mind as to the contagious or noncontagious character of the epidemic, and the physicians of Philadelphia, and soon those of the entire country, were engaged in active dispute concerning this great problem. In Philadelphia, itself, the controversy raged with intensity. Dr. Benjamin Rush, the greatest physician of the day, and one of the greatest the American nation has ever produced, the "father of American psychiatry," was the first to recognize the nature of the disease, about the middle of the month of August. In his "Account of the Bilious Yellow Fever of 1793," one of the most masterly descriptions of an epidemic ever written, Rush writes:

This discovery of the malignity, extent and origin of a fever which I knew to be attended with great danger and mortality gave me great pain. I did not hesitate to name it the *bilious remitting yellow fever*. I had once seen it epidemic in Philadelphia in 1762. . . . I expressed my distress at what I had discovered to several of my fellow citizens. The report of a malignant and mortal fever being in town spread in every direction, but it did not gain universal credit. Some of these physicians who had not seen patients in it denied that any such fever existed, and asserted (although its mortality was not denied) that it was nothing but the common annual remittent of the city. Many of the citizens joined the physicians in endeavoring to discredit the account I had given of this fever and for a while it was treated with ridicule or contempt. Indignation in some instances was excited, against me, and one of my friends, whom I advised in this early stage of the disease to leave the city, has since told me that for that advice he "had hated me."



A BRIEF

HISTORY

OF

EPIDEMIC AND PESTILENTIAL DISEASES

WITH THE

PRINCIPAL PHENOMENA OF THE PHYSICAL WORLD, WHICH PRECEDE AND ACCOMPANY THEM,

AND

OBSERVATIONS DEDUCED FROM THE FACTS STATED.

IN TWO VOLUMES.

BY NOAH WEBSTER,

Author of Dissertations on the English Language and several other Works—Member of the Connecticut Academy of Arts and Sciences—of the Society for the Promotion of Agriculture, Arts and Manufactures, in the State of New-York—of the American Academy of Arts and Sciences, and corresponding Member of the Massachusetts Historical Society in Massachusetts.

VOL. I.

HARTFORD:

PRINTED BY HUDSON & GOODWIN

1799.

[PUBLISHED ACCORDING TO ACT OF CONGRESS.]

Fig. 9.—Title-page of the "History of Epidemic and Pestilential Diseases," Hartford, 1799.

Rush was confident that the disease had not been imported, but had arisen from the putrid exhalations of a quantity of damaged coffee on one of the wharves. The College of Physicians declared it to be a contagious fever, and issued a statement to that effect. Rush inserted in the *American Daily Advertiser* of August 29 an address to the citizens of Philadelphia, giving his opinion as to the local origin, warning the public against the spot where the coffee lay, in the hope of checking the progress of the fever as far as it was continued by the original cause. Fresh indignation was excited against Rush; he was threatened with all sorts of indignities, even personal assault, but he remained steadfast in his convictions. The mayor ordered the coffee removed, but the epidemic lasted until November, the number of deaths between August 1 and November 9 being 4,044, a death rate of about one in ten of the total population. Rush remained at his post, doing heroic work; on October 9 he himself contracted the disease, but fortunately recovered after a long convalescence. The psychologic effects on the country were very great; the epidemic was celebrated in verse and in one of the early American novels, Brown's "Arthur Mervyn."

The next year, 1794, saw another epidemic of yellow fever in Philadelphia, of less severity, and the disease appeared in New York, New Haven, Baltimore, Charleston and elsewhere, and for the next two years sporadic cases developed in many places. In 1795, in New York, 700 people died of the disease in a few weeks, and there was great mortality in the cities of Norfolk and Charleston. Again in 1796 there were lesser epidemics, even as far north as Newburyport, Mass. The physicians of the whole country were now divided into two hostile camps, those who believed the disease was imported and contagious, and those who favored the view that it was of local origin and dependent on a local or general atmospheric state.

Webster threw himself with enthusiasm into this discussion. He had come to believe more and more in a close relationship between epidemics and natural phenomena, and now busied himself in collecting material in support of this view. His diary becomes more than

ever loaded with meteorological observations. He went to the public libraries of New York and Philadelphia, to Yale and Harvard College in search of material concerning this subject. He collected all that he could from the historical works available in the country bearing upon the occurrence of epidemic diseases in all parts of the world at all ages of history. His education and literary methods made him especially adapted to such library research, aside from his own instinctive fondness for such investigations. He turned also to the living for individual experiences with epidemic diseases; he wrote to his usual correspondents, he sent out circular letters to the prominent men of the day, to the historians, to the most prominent physicians, the list too long to be given here, to foreign countries; he took depositions of sailors and other persons, collecting an enormous amount of material which he arranged systematically and analyzed with that tireless indefatigability which seems the most remarkable characteristic of this remarkable man. During these years he carried on a most interesting correspondence with Dr. Rush bearing upon the nature of epidemic diseases.

The first fruits of these investigations were published in 1797, in a series of twenty-five letters in the public press, addressed to Dr. William Currie of Philadelphia, one of Rush's most bitter antagonists. What Rush thought of Currie is shown in a letter to Webster dated Feb. 7, 1798: "I wish you would address your letters to the College, instead of Dr. Currie. The latter is thought a weak man by his friends, and *something worse* by his enemies. His name will hurt the circulation of your book in Philadelphia."

THE HISTORY OF EPIDEMIC DISEASES

In his diary of 1798, Webster wrote on April 10, "Begin to write my History of Epidemic Diseases from materials which I have been three months collecting." In August of this year, yellow fever appeared in New York and Philadelphia in a more virulent form. In his diary of 1799, Webster writes:

My history of Pestilential Diseases was published in December, 1799. On the 14th of December, 1799, died the Great and Good Washington in the 68th year of his age, of a Cynanche Tonsillaris, after 24 hours illness. All America Mourns.

"A Brief History of Epidemic and Pestilential Diseases," in two volumes, was published in 1799, by Hudson and Goodwin of Hartford, and was reprinted in London, in 1800. There was some talk of a German translation, but apparently this was never made. In the introduction he explains why a publication on the subject of diseases should come from the pen of a man who has never before turned his attention to medical sciences. He distinguishes clearly glandular or inguinal plague of the Levant and the bilious or American plague commonly called yellow fever. He gives concise definitions for infection and contagion:

That quality of a disease which communicates it from a sick to a well person, on simply inhaling the breath or effluvia from the person of the diseased, at any time and in any place, may be called specific infection. Such is the contagion of the smallpox and the measles, which are, therefore, called contagious diseases.

That quality of a disease which though insalutary will not communicate it, without the aid of other causes, as warm weather, or peculiar situation and habit of body, and which requires the healthful person to be a considerable time under its influence, to give it effect, may be called *infection*. Such is the quality of the plague, in all its forms, dysentery, and all typhus fevers.

This is a very remarkable distinction for one who had no knowledge of the actual causes of these diseases. He came as close to the truth as any one could who knew nothing at all of living micro-organisms as the real causal agents of contagion and infection. As he, himself, observes, such a distinction had not been defined or used by European physicians, and it is of extraordinary interest that a layman on the basis of literary methods of study alone should come as close to scientific truth as it was possible for any one to do at that time, in the absence of all the facts of the parasitic nature of infection.

The main point of his argument is, however, the identification of general or primary contagion with a pestilential stage or constitution of the atmosphere which produces disease, or disposes the body to disease; and the chief aim of his work is to support this theory by a historical study of the relations between epidemics and natural phenomena producing such a pestilential atmosphere. After a short section in which he gives the views of various authorities on the origin of plagues and epidemics, he starts boldly at his task of historical investigation of epidemics and the concurrence of natural phenomena, beginning with the five books of Moses, through Greek and Roman times, the early Christian era, and all of the succeeding centuries, up to the year 1799. This took up the first volume. His plan was a simple one: From all possible historical sources he collected the facts of the recorded epidemics of the world, collating with these the records of natural phenomena, such as comets, meteors, eclipses, earthquakes, famines and storms. The accompanying examples of his pages will show his method and his material.

It was but natural that Webster should be troubled by the difficulty of synchronizing dates, and he was sometimes hard put to it in his attempts to show the desired sequence between natural events and epidemics of disease. He naturally was extremely honest; but in a work of this kind, it was easy enough to ascribe any embarrassing discrepancies to historical inaccuracies or deficiencies. In his second volume he gives the bills of mortality for the last two centuries with the principal phenomena of the elements, with a discussion on the history and the tables, showing pestilential periods of the atmosphere to be indicated by an increase of

SECTION XII.

Of the Influenza, or Epidemic Catarrh.

As the catarrh appears to be the diſeaſe which is moſt cloſely connected with peſtilence, and the leaſt dependent on local cauſes or the ſenſible qualities of the air, I have collected all the well-defined inſtances of this epidemic which have occurred to my reſearches, and arranged them in chronological order; placing againſt the year the moſt remarkable phyſical occurrences, and mentioning thoſe which fell within the years next preceding and following:

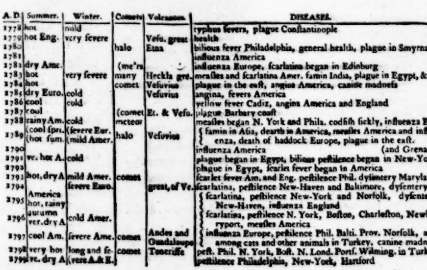
A. D.	CATARRH EPIDEMIC IN
1174,	the year *before* an eruption of Etna, and followed by great mortality. [Chaſin in the accounts of this diſeaſe.]
1510,	the *ſame* year with an eruption in Iceland, and following great earthquakes. Humid air—a comet appeared the next year. [Chaſin.]
1551,	the year *after* an eruption of Etna, and a comet. Seaſon wet.
1557,	the year *after* an eruption of Etna. Seaſon moſtly wet; but in ſome countries dry; a comet the ſame year. [Chaſ.]
1580,	the year *after* an eruption of Etna. Cool dry north wind —A comet.
1587,	the *ſame* year with an eruption in Iceland—and *after* a comet.
1591,	*after* earthquakes in 1590, and a comet.
1597,	the year *after* earthquakes and a hard winter; rainy ſeaſon, and a comet the ſame year.
1602,	the year *after* earthquakes, volcano and ſevere winter. Cold and wet ſeaſon.

Fig. 10.—Page from the "History of Epidemic and Pestilential Diseases."

mortality in different parts of the world. One chapter is given to a discussion of the "influenza or epidemic catarrh." The remainder of this volume is taken up by an argumentative discussion of the order, connection and progression of pestilential epidemics; the extent of a pestilential state of air; the phenomena attending pestilential periods, with conjectures as to the causes; a full discussion of his views on contagion and infection; finally, preventive medicine is given consideration in a long chapter on the means of preventing or mitigating pestilential diseases, and a final chapter on the disappearance of plagues in parts of Europe and of new diseases. Webster even then cannot leave his subject, and gives extensive addenda on lunar influences, electricity, popular modes of guarding against infection, venesection, vapor or mephitic air, revolution of certain comets, and at the very last a postscript—all of these suggesting immense desk labor, overfilled notebooks and prodigious use of time, and all accomplished without amanuensis or typewriter.

The upshot of it all was the chief theorem that "the principle which gives to fevers the pestilential quality consists in the *insensible* properties of the atmosphere." How near he came to the germ-theory, and yet how far away from it! To Benjamin Rush he wrote, Nov. 26, 1799:

> I feel a good deal of confidence in my proofs that epidemic diseases of all kinds proceed from chemical changes in this fluid in which we live and whose vivifying and elastic powers constitute the source of life. . . . After all, I more and more see the difficulty of reaching the cause. That the electrical principle is the agent I am inclined to believe; indeed, I have not the power to resist the evidence of it; but by what combinations with aerial substances, I am ignorant.



A.D.	Summer.	Winter.	Comets	Volcanoes.	DISEASES.	London	Paris.	Phil.
1779	hot	mild		Vefu. great	typhus fevers, plague Conftantinople	20399	17222	183
1779	hot Eng.	very fevere		Heckla	bilious fever Philadelphia, general health, plague in Smyrna	20410		142
1780			halo	Etna	bilious fever Philadelphia, general health, plague in Smyrna	20517	Salem	155
1781					influenza America	20709	Mafs.	239
1782	dry Autc.		(me'rs		influenza Europe, fcarlatina began in Edinburg	17918	177	198
1783	hot	very fevere	many	Heckla gre.	meafles and fcarlatina Amer. famin India, plague in Egypt, &c.	19029	189	230
1784	hot		comet	Veluvius	plague in the eaft, angina America, canine madnefs	17818	140	230
1785	dry Euro.	cold		Veluvius	angina, fevers America	18429	114	186
1786	cool	cold			yellow fever Cadiz, angina America and England	20454	158	156
1787	cool		(comet	Et. & Velu.	plague Barbary coaft	19347	140	147
1788	rainy Am.	cold	meteor		meafles began N. York and Phila. codfifh fickly, influenza Eu.	19697	144	126
1789	cool fpri.	fevere Eur.	halo	Vefovius	famin in Afia, dearth in America, meafles America and influenza, death of haddock Europe, plague in the eaft.	22744	159	164
1790	hot fum.	mild Amer.			influenza America (and Grenada	18038	203	145
1791	vc. hot A.	cold			plague began in Egypt, bilious peftilence began in New-York	18560	148	183
1792	hot				plague in Egypt, fcarlet fever began in America	20313	148	125
1793	hot, dry A.	mild Amer.	comet	Vefuvius	fcarlet fever Am. and Eng. peftilence Phil. dyfentery Maryland	21749	148	292
1794		fevere Euro.		grent, of Ve.	fcarlatina, peftilence New-Haven and Baltimore, dyfentery	19141	222	272
1795	America hot, rainy				fcarlatina, peftilence New-York and Norfolk, dyfentery New-Haven, influenza England	21279	295	229
1796	autumn vcr. dry A.	cold Amer.			fcarlatina, peftilence N. York, Boftos, Charleftos, Newbo-ryport, meafles America	19288	256	223
1797	cool Am.	fevere Amc.	comet	Andes and	influenza Europe, peftilence Phil. Balti. Prov. Norfolk, and among cats and other animals in Turkey, canine madnefs	17024	247	297
1798	very hot	hang and fr.	comet	Quadalupe	peft. Phil. N. York, Bofl. N. Lond. Portf. Wilmng. in Turkey			
1799	vc. dry A.	(rem A.& E.)		Teneriffe	peftilence Philadelphia, New-York, Hanford			

Fig. 11.—Table from the "History of Epidemic and Pestilential Diseases," illustrating Webster's method of correlating historical data concerning the coincidence of epidemic diseases and natural phenomena.

Webster's work was received by the medical profession according to their individual beliefs. Those, like Rush, who believed in the local origin of epidemics, praised it highly; the other school condemned it bitterly. It was reviewed in the *Medical Repository* and other scientific journals in the same way, according to the individual beliefs of the writers. Currie of Philadelphia in his work on "The Origin of Yellow Fever," appearing in 1800, retorts in vigorous terms:

> The doctrine of Mr. Webster on this subject, notwithstanding his elaborate researches, appears still more exceptional, and to be as much the creature of the imagination as the tales of the fairies.

Webster received no profit from this work. It was a work of love, or rather, of conviction. In 1801 he wrote that he was some 700 or 800 dollars out of pocket on account of it, with all his previous expenses, his labor and his toil. Nevertheless, the work had a great influence in modifying the prevalent views on the contagious nature of yellow fever, and this was of great practical and humanitarian importance. During the first half of the nineteenth century, epidemics of yellow fever continued to occur in this country, and the controversy as to its origin still went on. Webster's views were repeatedly quoted in connection with medical ones. His work was imitated, without any credit, by Bascom of England in "A History of Epidemic Pestilence," 1851, carrying the same method of investigation up to 1848. Much of this work and conclusions are taken bodily from Webster, but his name is not even mentioned. This work had the same fate in one way as the Spelling Book: it was frequently pirated without acknowledgment.

John W. Francis, in the *International Magazine*, February, 1852, said of Webster:

> If with philologists he is deemed a man of merit, it may with equal justice be said that he is to be recognized by medical men as an author of importance for his "History of Pestilence."

Today we know that these early strivers for the truth were all wrong; that the intangible something in the atmosphere was a mosquito, *Stegomyia*, and the organisms of yellow fever carried by it and injected into the human beings bitten by it. The personal bitterness of their dispute, in their ignorance, appear pathetic to us today, as children crying in the dark. But it was all necessary as a phase in the slow, painful evolution of human knowledge, and another generation will look on our own efforts in the same light.

Noah Webster was one of America's greatest men, measured by the vigor of his mentality, the manifold character of his interests, and the value of his achievements. His courage and his indomitable will should be an inspiration to every youth of the present age. He lacks a sympathetic biographer, to throw about his life a literary atmosphere of appeal and suggestion. His great predecessor Johnson had his Boswell, and so attained immortality in literature. Webster remains today a name on a dictionary, known to every American but almost wholly unknown in the deeper significance of his life and work.

The Most Intelligent Animals.—The chimpanzee is the most intelligent of all animals below man. He can learn more by training, and learn more easily than any other animal. The orang-utan is mentally next to the chimpanzee. The Indian elephant in mental capacity is third from man. The high class domestic horse is very wise and capable, but this is chiefly due to its long association with man. The wild horse mentally is a very different animal, and in intellectual scale ranks with the deer and antelopes. The lion is endowed with reasoning ability and judgment of a high order; its mind is surprisingly receptive. The grizzly bear is believed to be the wisest of all bears. The pack rat is the intellectual phenomenon of the great group of gnawing animals, and is in a class by itself. The white mountain goat seems to be the wisest of all the mountain summit animals whose habits are known. A high class dog is the animal that mentally is in closest touch with the mind, the feelings, and the impulses of man, and is the only animal that can read a man's feelings from his eyes and his facial expression.—Hornaday, "The Minds and Manners of Wild Animals," *Scribners*, 1922.

THE PHYSIOLOGIC EFFECTS OF ETHYLENE

A NEW GAS ANESTHETIC *

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During the early part of 1908, severe losses were sustained by carnation growers shipping their products into Chicago, because of the fact that these flowers, when placed in the greenhouses, would "go to sleep," whereas the buds already showing petals failed to open. Crocker and Knight [1] of the Hull Botanical Laboratory immediately undertook the study of the effect of illuminating gas on flowering carnations, the results of which showed that ethylene, which forms approximately 4 per cent. of the gas, is the chief constituent that determines the toxicity of the gas for plants. Their investigations showed that one part of ethylene in 2,000,000 parts of air caused the already open flowers to close, on twelve hours' exposure, whereas one part in 1,000,000 prevented the opening of buds already showing petals. Neljubow,[2] who had previously studied the effects of ethylene on etiolated seedlings of peas and other legumes, showed that one part of ethylene in 1,000,000 parts of air caused horizontal nutation, whereas one part in 4,000 killed the majority of the seedlings. The effects of ethylene on the metabolism of plants has been studied by Harvey,[3] who also studied its effect on castor oil plants [4] and on sweet peas,[5] demonstrating the fact that one part of ethylene in 1,000,000 caused the petioles of the leaves to droop, or the laminae to fold down. These plants, being sensitive to as little as 0.00001 per cent. of ethylene in the atmosphere, can be used as very delicate tests for the heavy hydrocarbons (ethylene), exceeding many fold the delicacy of any chemical test for these substances.

Because of its marked toxic effects on flowering carnations and plants, the question of the toxicity of ethylene for animals naturally arose. The extreme toxicity of ethylene for plants furthermore suggested the possibility that some of the toxic properties of ordinary illuminating gas for animals might be due to its ethylene rather than to its carbon monoxid content. Several experiments [6] having been performed with various concentrations of ethylene with no perceptible toxic but, if anything, mildly anesthetizing effects, it was decided to use higher concentrations, the results of which will be given later.

METHODS

For the preparation of ethylene, we used the orthophosphoric acid method,[7] which consists of slowly introducing absolute alcohol from a separatory funnel led to the bottom of a 500 c.c. generating flask containing between 100 and 150 c.c. of orthophosphoric acid, held at a temperature of from 210 to 230 C., the ethylene being allowed to pass first through an empty wash bottle (which took care of the water distilling over), thence through a series of four wash bottles containing 33 per cent. potassium hydroxid (to remove any carbon dioxid present), being finally collected, over water, into 17 liter demijohns for storing.

Hempel [8] advises passing the gas also through concentrated sulphuric acid (specific gravity, 1.84, to remove the aldehyd) and in addition through copper sulphate (for the absorption of phosphin, if any should be present), but the two latter precautions were found to be unnecessary. Anhydrous aluminum sulphate was used as a catalyst in some of the preparations, but with questionable results.

This method was chosen after the concentrated sulphuric acid-absolute alcohol method of Ehrlenmeyer and Bunte [9] had been tried, partly because much less potassium hydroxid was necessary to take care of the carbon dioxid, since no sulphur dioxid was formed, and partly because of the fact that a single portion of phosphoric acid could be used repeatedly, since the water removed from the alcohol was distilled over immediately at this temperature, the acid remaining undecomposed.

The purity of the ethylene thus prepared was determined by analysis of samples, bromin absorbing 98 per cent. plus, the unabsorbed portion proving to be air coming from the generator chamber.

The various concentrations used were obtained by displacing a certain amount of the gas in the demijohn by a measured quantity of water, corresponding to the percentage concentration of the oxygen desired, and then displacing this by oxygen, over water.

The animals used for these experiments were successively frogs, white mice, white rats, guinea-pigs, rabbits, kittens, dogs and man. Nitrogen and hydrogen were used in all experiments in corresponding concentrations for the purpose of studying the asphyxial effects of that concentration of a nonrespirable gas. Nitrous oxid was also used in like concentration for the sake of comparing the effects of ethylene with those of this well known depressant and anesthetic.

The criterion for determining anesthesia and analgesia in all experiments, except where otherwise noted, was that stage of narcotization wherein the animal lay quietly on its back and showed no signs of spontaneous movements or skeletal reflexes on tactile or even painful stimulation.

In this study, as well as in the earlier work (in 1909 and 1918), various amounts of ethylene gas were allowed to bubble through diluted dog's blood. This blood was then examined spectroscopically to detect if possible any characteristic absorption bands resulting from the chemical union of ethylene with the hemoglobin. The ethylene apparently does not enter into chemical combination with the hemoglobin of the blood, for, when the gas was passed through dilute dog's blood, the absorption bands of oxyhemoglobin remained unaltered. When, furthermore, the blood was treated with ammonium sulphid, it showed the same reduced hemoglobin bands as are obtained by the reduction of oxyhemoglobin. Ethylene probably exists in the blood during anesthesia, in a state of physical solution, as is suggested by the rapid recovery of all animals after prolonged administration of the gas.

* From the Hull Physiological Laboratory, the University of Chicago.

1. Crocker and Knight: Bot. Gaz. **46**: 259-276, 1908.
2. Neljubow, D.: Bot. Centralbl. Beitr. **39**: 128, 1901.
3. Harvey, E. M.: Bot. Gaz. **60**: 193-214, 1915.
4. Harvey, E. M.: J. Roy. Hort. Soc. **40**: 300, 1914.
5. Harvey, E. M.: Bot. Gaz. **55**: 357.
6. The preliminary experiments on the physiologic properties of ethylene were performed by one of the authors (A. B. L.) and R. C. Thompson in the spring of 1918. These experiments (on frogs, white rats and one dog) indicated that the gas in the concentrations used was relatively nontoxic and seemed to possess anesthetizing and analgesic properties.
7. Barnett: Preparations of Organic Compounds, p. 36. Gatterman: Preparations of Organic Chemicals, New York, the Macmillan Company, 1906, pp. 166-170.
8. Dennis, L. M.: Hempel's Gas Analysis, New York, 1902, pp. 34-95, and 316.
9. Ehrlenmeyer and Bunte: Liebig's Annals, **188**: 64; **192**: 244.

The device for the administration of the gas mixtures is the same in principle for all experiments on white mice, white rats, guinea-pigs, rabbits and kittens, and may be briefly described, with the aid of Figure 1:

The animals placed in their respective bell jars, *F*, *G*, *H* and *I*, are sealed up by pieces of plate glass applied to the bases, these having been thickly smeared with petrolatum. Next, the pinch clamps *e*, *e'*, *f* and *f'* are removed from the rubber tubes *i*, *j*, *k* and *l* leading from the forked siphon (*a*), and water, which is kept at a constant level in the pressure bottle (*A*) by means of water forced into it through the tube (*b*) attached to the faucet (*z*), is allowed to flow into the 17 liter demijohns *B*, *C*, *D* and *E*, which contain the gases hydrogen, nitrogen, nitrous oxid and ethylene, mixed with the desired concentration of oxygen. Immediately the pinch clamps *g*, *g'*, *h* and *h'* are removed from the rubber tubes *m*, *n*, *o* and *p*, and the gas mixtures are delivered over into their respective 4 liter bell jars *F*, *G*, *H* and *I*, containing the animals used. The flow through the four branches of the forked siphon is kept constant by adjustment of the screw clamps (*c*) and (*c'*), and is easily judged by the relative level of the water in *B*, *C*, *D* and *E*. The gas mixtures, having been delivered over into *F*, *G*, *H* and *I*, at a constant rate, make exit through the glass tubes *d'*, *d''*, *d'''* and *d''''* fitted into the sides of the bell jars near their base.

In the work with frogs, wide mouthed bottles of 675 c.c. capacity were used. The gases in the desired percentage concentrations were introduced under water; the frogs being likewise introduced into their respective bottles, and these tightly corked.

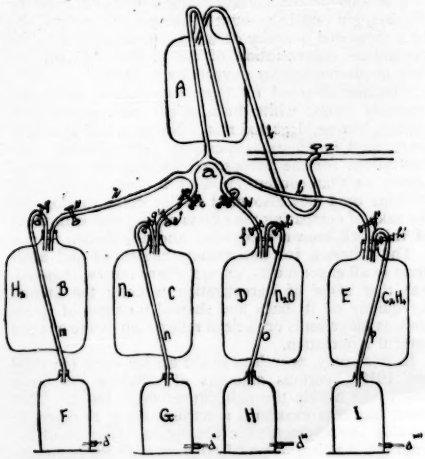

Fig. 1.—Scheme employed in studying simultaneously the effect of a given concentration of hydrogen, nitrogen, nitrous oxid and ethylene on white mice, rats, guinea-pigs, rabbits and kittens. Water siphoned from demijohn *A* displaced the various gases contained in *B*, *C*, *D* and *E*, into *F*, *G*, *H* and *I* containing the animals.

Because of the fact that the method used for the smaller animals was wasteful, it was decided to employ a closed system for the work on dogs. The apparatus devised for this work, after considerable experimentation, may be briefly described, with the aid of Figure 2:

The dog's nose, having been closely shaved, is inserted into the metal flask (*C*), which is covered by a strong rubber dam (*W*), containing a circular opening (*z*) three-fourths inch in diameter. The motor (*F*) when started, caused the pump (*E*) to circulate the gas contained in the 17 liter demijohn (*A*) successively through tubes *a*, *b*, *c* and *d* and back into *A*. *D* is a jar containing soda lime for the absorption of carbon dioxid. *B* is an ordinary basketball bladder, which takes care of any increase in pressure in the system when oxygen is added, and also functions as a manometer in indicating the decrease in pressure due to the oxygen used up, thereby

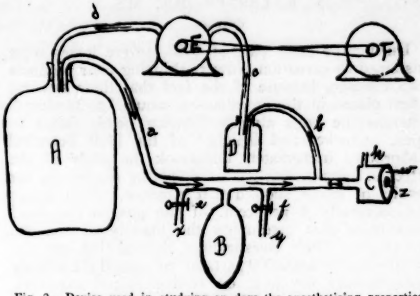

Fig. 2.—Device used in studying on dogs the anesthetizing properties of ethylene. The electrically driven pump *E-F* circulated the ethylene (in *A*) and oxygen introduced at *x* through the connecting tubing and to *C*, a mask for the dog's snout, the carbon dioxid being removed on passage of the circulating gas mixture through jar *D*, containing soda lime.

serving as a guide as to when more oxygen should be added. A rubber tube (*x*), closed by a pinch clamp (*e*) is led off from a T-tube to an oxygen tank; *y* is likewise a rubber tube, kept closed by a pinch clamp (*f*), and used for the purpose of removing 50 c.c. samples of the gas mixtures, during the experiment, for analysis. A small rubber tube (*k*) serves to connect the system with a tambour for respiratory tracings.

Small, young dogs, weighing from 4 to 8 kg., were used for these experiments. Just before the experiment, the animal was prepared for blood pressure tracings by insertion of a two-way cannula into the femoral artery under local anesthesia, a weak solution of procain being used to which 10 drops of epinephrin chlorid had been added. The experiments covered a period of from forty-five minutes to one hour.

RESULTS

The accompanying table contains the essential details of the pharmacologic effects of ethylene gas used in various concentrations on the different types of animals. In all experiments the effects of ethylene were compared simultaneously in the same concentration with two other irrespirable gases, hydrogen and nitrogen, as well as with nitrous oxid.

By 85, 90 or 95 per cent. of a gas we mean that, in a given experimental mixture, 85, 90 or 95 parts of the mixture consisted of ethylene, hydrogen, nitrogen or nitrous oxid, and that the other 15, 10 or 5 parts consisted of oxygen. One hundred per cent. indicates, of course, the pure gas (be it hydrogen, nitrogen, nitrous oxid or ethylene) without admixture with oxygen.

For the convenience of the reader, we point out some of the salient features of this table.

Frogs.—In an 85 per cent. mixture of the various gases, frogs were anesthetized after twenty minutes by ethylene. At that time the frogs in a similar concentration of hydrogen, nitrogen and nitrous oxid were practically normal. When 100 per cent. of the various gases were used, ethylene anesthetized in four minutes, nitrous oxid in fifteen minutes,

hydrogen and nitrogen not at all. *Ethylene, compared with nitrous oxid, anesthetizes frogs in approximately one-fourth the time.* Recovery from the anesthetic (ethylene) is complete within two minutes.

White Mice.—In from 75 to 80 per cent. mixture of ethylene, the animals are markedly depressed but not anesthetized. Animals in a similar percentage of nitrous oxid are practically normal except possibly for some evidence of excitement. Those in from 75 to 80 per cent. hydrogen or nitrogen are normal. As the percentage of gas is increased (to 85 and 90 per cent.), the animals in ethylene are anesthetized at a time (from twenty-two to thirty minutes) when those in nitrous oxid show only slight depression, and those in hydrogen and nitrogen show only a slightly increased respiration. With a 95 per cent. mixture, ethylene anesthetizes in in the other gases, including nitrous oxid, no depression was in evidence. With a 90 per cent. mixture of ethylene, all animals were anesthetized in from ten to twenty minutes (extremes). Those in 90 per cent. nitrous oxid were anesthetized in from twenty to forty minutes (extremes). Animals in the other irrespirable gases of hydrogen and nitrogen (90 per cent.) were unaffected. In all animals anesthetized, recovery took place promptly within from one to three minutes.

From these experiments it appears that all of our animals (mice, rats, rabbits, guinea-pigs and kittens) could be anesthetized with a 90 per cent. ethylene mixture in *one-half the time necessary to anesthetize the same animals with the same percentage of nitrous oxid.*

EFFECTS OF ETHYLENE ON DIFFERENT TYPES OF ANIMALS

Animal	Concentration of Gas Used	No. of Experiments Performed	Average Time of Experiment	Effects Observed			
				Hydrogen	Nitrogen	Nitrous Oxid	Ethylene
Frog.....	80%	2	30 min.	Respiration fell from 108 to 63; seemed depressed	Respiration fell from 96 to 84; less depressed	Much less depressed than one in ethylene; not anesthetized	More depressed than one in N_2O; not anesthetized
	85%	5	30 min.	Seemed normal throughout; not anesthetized	Quite normal throughout; not anesthetized	Practically normal; not anesthetized	Anesthesia after 20 minutes; recovered in 2 minutes
	100%	4	30 min.	Gasping cyanosis depression; not anesthetized	Less marked effects than H_2; not anesthetized	Respiration depressed; anesthesia after 15 minutes	Respiration depressed; anesthesia after 4 minutes; recovered in 2 minutes
White mouse	75%	2	1 hr.	Normal	Normal	Normal	Marked depression; not anesthetized
	80%	3	70 min.	Normal	Normal	Some excitement; no depression; not anesthetized	Marked depression; equilibrium disturbed; not anesthetized
	85%	3	80 min.	Slightly depressed after 1 hour; not anesthetized	Normal	Slight respiratory difficulty near end; not anesthetized	Light anesthesia after 30 minutes; recovered in 3 minutes
	90%	6	100 min.	Respiration increased slightly; depressed slightly; not anesthetized	Respiration increased slightly; otherwise normal	Slightly depressed; not anesthetized	Anesthesia after 22 to 30 minutes; recovered in 1 minute
	95%	4	.....	Anesthesia after 22 to 28 minutes	Anesthesia after 18 to 28 minutes	Anesthesia after 5 to 9 minutes; maintained 10 minutes; recovered in 1 minute	Anesthesia after 3 to 4 minutes; maintained for 10 minutes; recovered in 1 minute
White rat...	85%	2	60 min.	Normal	Normal	No depression; not anesthetized	Slight depression; not anesthetized
	90%	5	55 min.	Normal	Normal	Slight depression; not anesthetized	Anesthesia after 18 to 22 minutes;* recovered in 1 minute
	95%	4	50 min.	Depressed after 40 minutes	Same as rat in hydrogen	Anesthesia after 30 to 35 minutes; recovered in 2 minutes	Anesthesia after 7 to 12 minutes; recovered in less than 2 minutes
Rabbit.....	85%	3	60 min.	Normal	Normal	No depression; not anesthetized	Slightly depressed; not anesthetized
	90%	4	50 min.	Normal	Normal	Anesthesia after 20 to 30 minutes; recovered in 2 minutes	Anesthesia after 10 to 16 minutes; recovered in 2 minutes; respiration slow and regular
Guinea-Pig..	85%	3	50 min.	Normal	Normal	No depression; not anesthetized	Slight depression; not anesthetized
	90%	5	50 min.	Normal	Normal	Anesthesia after 30 to 40 minutes; recovered in 1 minute	Anesthesia after 10 to 15 minutes; recovered in 1 minute
Kitten.....	85%	2	50 min.	Normal	Normal	No depression; not anesthetized	Slight depression; not anesthetized
	90%	6	50 min.	Normal	Normal	Anesthesia after 30 to 35 minutes; recovered in 3 minutes	Anesthesia after 10 to 20 minutes; sat up after 1 minute; walked after 2 minutes

* Anesthesia and analgesia were tested by strong pinches with hemostat introduced into bell jar through rubber dam.

from three to four minutes, nitrous oxid in from five to eight minutes, nitrogen in from eighteen to twenty-eight (?), hydrogen in from twenty-two to twenty-eight (?) minutes. Recovery is complete within one minute after the animals are returned to the air.

Ethylene, compared with nitrous oxid, anesthetizes white mice not only in lower concentration but in one-half the time.

White Rats.—Ethylene anesthetized these animals in from seven to twelve minutes when used in 95 per cent. mixture. It took from thirty to thirty-five minutes to effect the same degree of anesthesia when nitrous oxid was used. In this concentration, nitrous oxid was only slightly more effective than nitrogen or hydrogen.

Rabbits, Guinea-Pigs and Kittens.—In 85 per cent. ethylene these species of mammals showed slight depression, whereas

Results on Dogs.—All arrangements having been made for blood pressure and respiratory tracings, the dog's nose was carefully inserted into the mask, the motor started, and a demijohn of pure ethylene was introduced into the system. A small amount of oxygen was added at once, which quickly relieved all signs of asphyxia. Complete anesthesia was obtained in from two to five minutes, the animal passing through an excitement stage (showing increased knee-jerk, dilated pupils, slightly increased respiratory rate, but very little struggling) into a surgical stage with abolition of the knee, skin and light reflexes, retention of the corneal reflex, complete muscular relaxation, and pin-point pupil. Oxygen was added to the system as needed, and by careful administration of it this stage of anesthesia could be maintained for a period of about thirty minutes on one bottle (17 liters)

of ethylene; but if the oxygen had been given too freely, or if it was desired to continue this stage beyond this period, it was necessary to introduce a fresh supply of ethylene. It was found that 17 liters of 90 per cent. ethylene and 10 per cent. oxygen, with proper administration of oxygen, served to continue this stage over a similar period. During the experiment, samples of the gas mixture were removed, and the percentage concentration of ethylene determined by absorption with bromin. This varied between 85 and 90 per cent. for complete anesthesia; whereas, when the concentration fell to 80 per cent. there was complete analgesia and absence of struggling, but no muscular relaxation. The pupil was dilated.

When the ethylene-oxygen mixture was replaced with air, the artery having been tied and the cannula removed, the dog wagged his tail in two minutes, walked in three minutes, and showed no signs of evil after-effects, except slight salivation, if a high concentration of ethylene had been maintained throughout the experiment. The analgesia usually lasted for two minutes after removal of the animal from the ethylene-oxygen system.

During some of these acute experiments, wide cuts were made all over the abdomen, with considerable traumatization of tissue. These procedures give rise to no muscular contractions or to reflex effects on the blood pressure or respiration. Although a laparotomy would have been a simple matter, owing to the complete muscular relaxation, this was not done, because of the fact that it was not desired to have the animal recover. In the case of all animals traumatized but allowed to recover, all wounds were previously bathed in a 4 per cent. solution of procain, and the animals showed no signs of discomfort during the few minutes they were permitted to live.

Besides the seven acute experiments, six other experiments were performed in which all observations were duplicated, except those on blood pressure and respiration.

One animal was anesthetized for forty-five minutes, fifteen times during a period of three weeks, the results in each of these experiments being absolutely consistent with the others of the series. The animal always completely recovered in three minutes, romped and played within five minutes, and, up to date, has shown absolutely no signs of evil after-effects. The animal in question, being in a very emaciated condition at first, managed, with good feeding, to gain approximately 3 kg. in weight during the three weeks of experimentation.

Results on Man.—On the basis of our experiences with ethylene reported above, it seemed desirable to investigate its analgesic and anesthetizing properties on the human subject. For such trials a larger supply of ethylene was necessary. After what seemed a fruitless search we were able to obtain the gas tanked by a commercial chemical company. The gas so obtained proved to be as pure as quoted, and we proceeded to test out its properties in combination with oxygen on ourselves, using a Clark gas apparatus and appliances for its administration. We append briefly our experiences to date with it:

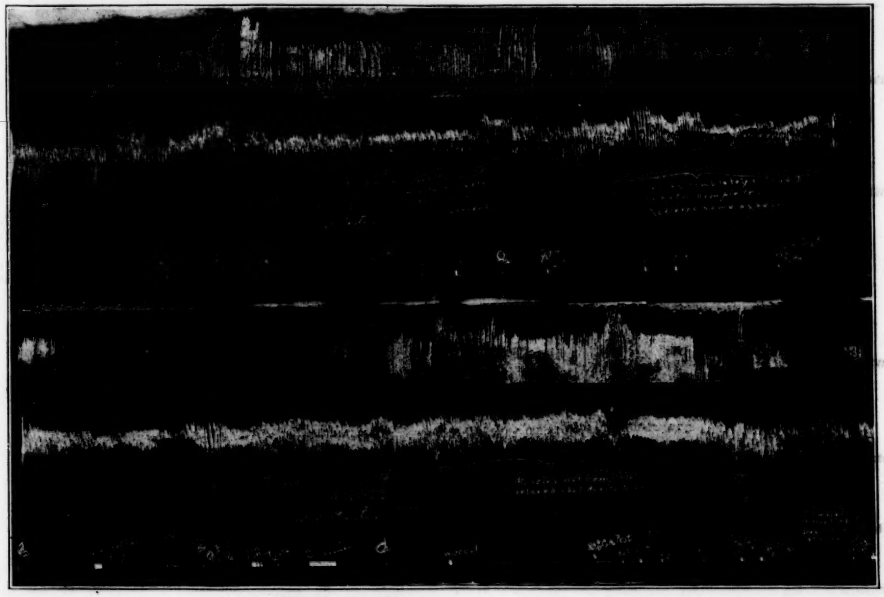

Fig. 3.—Effects of ethylene on blood pressure and respiration: *A*, analgesia.

EXPERIMENT 1.—J. B. Carter, reclining, Jan. 21, 1923, held the mask to the face with one hand and held up the other arm. He was given gas plentifully mixed with oxygen until the extended arm wavered. Administration was discontinued. Just enough was given to give a sense of well-being and exhilaration. At no time was there change in the color of the face.

EXPERIMENT 2.—A. B. Luckhardt reclined and held the mask and extended the arm as did Mr. Carter. Mr. Carter gave the gas mixture. The arm soon wavered and dropped (in less than one minute). There were no asphyxial sensations. There was a sense of contentment and well being. There was no apprehension of possible danger. Everything seemed well. Pains from an infected and active frontal sinus infection left. The subject was satisfied to lie there under the influence of the gas for all time. He did not think that con-

sciousness was completely lost at any time. He came out rather rapidly from a half sleep with slight incoordination of gait lasting a few minutes.

EXPERIMENT 3.—The authors having thus tried out on themselves the immediate effects of the gas, the following subjects volunteered and were more or less deeply anesthetized:

(*a*) A. J. Carlson: After a minute or less the extended arm fell awkwardly and laterally against the wall with a thud. The subject was quiet throughout. Administration of the pure gas with occasional oxygen inhalations continued for three or four minutes. The subject thinks he was conscious throughout but felt extremely comfortable. He came to after a minute or so. He states that he was slightly nauseated for several hours after.

(*b*) J. Blumenstock: The arm dropped; he laughed a good deal at the start. This subsided. He seemed completely anesthetized. The skin of the arm was lifted up and a blunt-pointed safety pin pushed through without any indication on the part of the subject of having felt it. He was kept under for three or four minutes. The experiment was repeated later in the morning.

(*c*) Archer C. Sudan, N. Kleitmann and K. Phillips were similarly anesthetized far past the stage of analgesia, for in two (N. K. and A. C. S.) the safety pin was pushed through the skin without provoking reflex movement of the arm, much less sensation of pain in the subjects. A. C. S. laughed a great deal before complete anesthetization. On recovery, he talked excitedly and incoherently of his experience. Only after several minutes did his speech assume a logical tendency. He had no recollection whatever of having had the blunt safety pin thrust through the skin of his forearm. N. K., while recovering from the anesthetic but while still dazed, vomited up a large breakfast taken several hours previously. He likewise had no recollection of having vomited. Nausea was not experienced, and the subject ate a hearty dinner within an hour.

(*d*) J. B. Carter and A. P. Luckhardt served alternately as subjects for two further attempts, being anesthetized by each other far past the stage of analgesia. Neither felt nauseated except for possibly slight abdominal discomfort for several minutes after recovery, the latter always being prompt and complete except for slight weakness and unsteadiness of gait immediately on getting up from the couch. A. B. L. desired to turn over on his side and go to sleep. J. B. C. went through a period of excitement in coming out of the anesthesia so that restraint by holding down the extremities was found necessary.

January 28, A. B. Luckhardt and J. B. Carter were in complete surgical anesthesia. The former was anesthetized for fully ten minutes, during which time he was pinched in the ear and the upper right arm. The soles of his feet were beaten with a Stillson wrench. Of none of these procedures had he any recollection. In the course of the following week a large "black and blue" area developed on the upper arm at the place of greatest injury. In addition to such observations on ourselves, we anesthetized lightly and for a short period of time (about five minute) several other volunteers, Carl Johnson, T. Boyd and G. Turner. Mr. Johnson arose from the couch a little pale and slightly nauseated. Mr. Boyd was slightly nauseated, but this discomfort left within the next hour while he was about working in the laboratory. G. Turner passed through a period of excitement during recovery from the anesthetic.

February 4, A. B. Luckhardt was again anesthetized by J. B. Carter for a short period, with Drs. Eugene Cary and Dallas B. Phemister, surgeons, making observations. In turns, Drs. Phemister and Cary were themselves anesthetized: the former only very lightly; the latter, until deep surgical anesthesia was attained. Thereafter, A. B. Luckhardt anesthetized J. B. Carter for a period of fifteen minutes, the longest anesthesia in time and depth so far maintained in man. Although all had taken large breakfasts, none experienced anything but a transient nausea.

In all, then, we have anesthetized, more or less deeply, twelve subjects. One of the authors (A. B. L.) was anesthetized six times in three days in three weeks; the other (J. B. C.), seven times on the three days in three weeks. In neither of us did sugar or albumin appear in the urine as a result of the experiences, nor did we experience any other evil after-effects except for a slight nausea and loss of appetite, both of very temporary nature.

SUMMARY

The following summary is warranted on the basis of these experiments:

1. Deep surgical anesthesia can be rapidly induced by ethylene without any sense of asphyxia, but, on the contrary, with a sense of well-being and comfort.

2. Analgesia comes on early apparently long before complete surgical anesthesia is established.

3. At a time when there is complete muscular flaccidity, the pulse rate is slightly decreased, if changed at all; respirations are slow but regular, and the countenance normal in color for the individual, or slightly paler. No cyanosis was ever observed. No subject ever showed any sign even suggestive of asphyxia.

4. The induction of anesthesia was in no way unpleasant except possibly for the first few inhalations of the *concentrated* gas, which induced reflex swallowing. A period of excitement characterized by laughing or forced movement preceded the anesthesia in some. In others, such signs were absent during induction, but were in evidence as the person recovered from the anesthesia.

5. Recovery from the anesthesia was always rapid on withdrawal of the gas mixture. In all, slight weakness and a sense of fatigue was experienced if the person arose from the couch almost immediately on waking up. Vomiting occurred in one early during recovery. In some, slight epigastric distress was experienced temporarily. In others, a slight nausea persisted for several hours after the administration of the gas. In none was nausea so pronounced or so prolonged as to interfere with the ingestion of the next meal.

ADVANTAGES

The possible advantages of ethylene over nitrous oxid, if used for human anesthesia, are:

1. Anesthesia may be maintained:
(*a*) In the absence of all signs of asphyxia.
(*b*) In the absence of effects on blood pressure.
(*c*) In the absence of dyspnea.
(*d*) With complete muscular relaxation.

2. It may be used in obstetrics, a state of complete analgesia being possible at a concentration of 80 per cent. ethylene.

3. There is rapid recovery after long continued administration, without evidence of after-effects.

These advantages would make possible its use in many persons and conditions in which nitrous oxid is specifically contraindicated, such as in children, in diabetic patients, in old age, in advanced arteriosclerosis, in high cerebral pressure, in operations on the brain, in major operations, and in obstetrics.

COMMENT

The phenomena produced by the undiluted gas are, in fact, partly asphyxial; but this factor can be removed by the addition of oxygen, when it is seen that narcosis results from the ethylene itself. This is shown on frogs, which preserve their reflexes for hours when placed in pure hydrogen, but lose them promptly (four minutes) when placed in pure ethylene.

Evidently the ethylene has a direct action on the central nervous system, a concentration of 90 per cent. maintaining the higher centers in a state of insensibility, after this has been induced by a higher concentration. This fact was first apparent in experiments on frogs, in which it was found that these animals could live in 85 per cent. illuminating gas for thirty minutes without showing any marked symptoms; whereas, when placed in a like concentration of ethylene they became completely anesthetic in twenty minutes. The motor reflexes are also abolished if a concentration of 90 per cent. is maintained after anesthesia has been induced.

There is no marked stimulation or depression of the vagus center, there being an increase in the heart rate during induction (excitement of animal), but a rapid return of this to practically normal later in the procedure. The vasomotor center remains undisturbed, except for a slight asphyxial depression during the beginning of induction, the blood pressure being practically the same at the end of a forty-five minute period of anesthesia as at the beginning. The respiratory center, likewise, is not affected in the absence of asphyxia, this fact being quite noticeable in the experiments on all the animals. Stimulation of the vomiting center sometimes occurs, during recovery, but was never observed during the induction of anesthesia, although several dogs were used soon after being fed.

Relaxation of the sphincters does not occur during the period of the anesthesia, but defecation and micturition take place immediately on recovery, in the case of the dog.

It is worthy of note that, with a small variation in the time required to produce anesthesia, the same concentration of gas can be used in the case of all animals used, and when this condition of anesthesia is induced it can be maintained practically indefinitely.

It is a well known fact that ethylene is readily oxidized in vitro to carbon dioxid by the use of an aqueous solution of chromic acid.[10] We have strong indications that ethylene is oxidized in vivo just as is alcohol; but this has not been definitely established.

So far we have not tried the anesthetic for minor or major surgical work. This we intend to do in the near future, using it, of course, cautiously and for only short periods of time. We recall that one dog was anesthetized for forty-five minutes fifteen times in the course of three weeks without our observing any untoward symptoms. We have been under the influence of ethylene two and three times on a given day for three consecutive Sundays. No late or evil effects were in evidence. We are therefore inclined to the view that the gas is relatively innocuous. However, we intend at an early date to determine whether a prolonged anesthetization (for two or more hours) produces in dogs any marked functional or histologic changes in the various organs of the body.

All experiences to date, involving many types of animals and including man himself, indicate that ethylene is a gas anesthetic of considerable merit; in fact, more desirable than nitrous oxid not only because of the ease of its administration but because of the several important points referred to and enumerated above.

CONCLUSION

This must be considered as a preliminary report of experimental work which has not been carried far enough to warrant general clinical use. We reserve for further study and experimentation in the clinic and laboratory the many problems which the study of the gas has suggested.

In conclusion, we desire to acknowledge our indebtedness to Prof. Fred C. Koch, whose advice and help in the preparation of pure ethylene was of the greatest importance in this research, as well as to Mr. George Turner for his willing help in the conduct of some of the experiments on dogs.

10. Norris: Organic Chemistry, New York, McGraw Hill, 1912, pp. 43-54.

Clinical Notes, Suggestions, and New Instruments

TRAUMATIC FAT NECROSIS OF THE BREAST

IRA COHEN, M.D., NEW YORK

The attention of physicians was directed to traumatic fat necrosis of the breast by Lee and Adair[1] in 1920, and again in 1922. Clinically, these tumors present many features commonly associated with carcinoma. They are hard; they may be fixed to the skin or deeper structures; there may be retraction of the nipple and enlarged axillary lymph nodes. Two characteristics which have to date constantly been described in all cases are the history of trauma and the corpulence of the patient. A certain number of malignant tumors, variously estimated at from 3 to 39 per cent., give a distinct traumatic history, so that there is nothing pathognomonic of traumatic fat necrosis except the histologic picture.

The nature of the trauma as the etiologic factor in this case of breast tumor is the reason for this report.

REPORT OF CASE

Mrs. S. H., aged 35, was referred because of a tumor in the left breast which had been present four weeks. In the history, the only point bearing any relation to the present complaint was that she had been under treatment for hypertension, and suffered with palpitation and precordial pains. She had had seven pregnancies, one of which resulted in a stillbirth after a difficult labor, and one a miscarriage. The youngest child was 3 years old. She nursed all her children, and never had had any trouble with her breasts till the present illness.

About five weeks prior to the time I saw her, she had an attack of severe palpitation and precordial distress, for which she applied an ice bag to the precordium. This bag was unprotected, and was allowed to remain practically in the one place for two hours. The following day she noted a burning sensation in the entire mesial half of the breast, which continued for forty-eight hours. On the second day the breast was red; on the third day the burning was replaced by pain, dull and inconstant in character, and localized in the lower mesial quadrant. Here on the fifth day a small nodule appeared. The nodule itself was not especially tender, but the skin overlying it was sensitive. About this time the pain entirely disappeared, to return the following week, and then remained with varying intensity throughout the illness. The small nodule slowly increased in size for three weeks, and then remained stationary.

The patient was an obese woman; she weighed 150 pounds (68 kg.), which was much too great for her height, with large breasts. In the mesial lower quadrant of the left breast was a tumor approximately 4 by 3 by 2 cm., which was hard and very irregular in contour, seemingly composed, at least in part, of many pea-size nodules. It was attached to the skin but not to the deeper structures. It was not sensitive. There were two axillary nodes to be felt, but one could also be felt in the opposite axilla. There was no retraction of the nipple.

In spite of the hardness and the skin attachment, the tumor did not impress me as malignant. I did not, however, at

1. Lee, B. J., and Adair, F. E.: Ann. Surg. 72: 188 (Aug.) 1920; Surg., Gynec. & Obst. 34: 521 (April) 1922.

that time lay any stress on the history, but believed that the patient's attention had been directed to the breast because of the ice bag, and that we were dealing with a fibro-adenoma. Local excision was advised, with pathologic examination of the excised tumor to determine any subsequent procedure.

Under local anesthesia the tumor was excised. Grossly, it was not encapsulated, nor did it resemble on section any malignant or benign tumor that I had seen. It was made up of many nodules of fatty tissue, different in appearance from breast fat. In the histologic report, Dr. S. H. Geist stated that the specimen showed small areas of fatty necrosis containing numerous giant cells, and that the lesion was probably due to some traumatic process.

COMMENT

To the two cases following direct blows and the three following hypodermoclysis may be added freezing from the prolonged application of an ice bag as an etiologic factor in producing a fat necrosis tumor of the breast.

Given a traumatic history in a corpulent patient with a breast tumor, the possibility of the benign nature of the growth should be kept in mind.

178 East Seventieth Street.

PERFORATED ULCER: REPORT OF A CASE

G. B. LEMMON, M.D., SPRINGFIELD, MO.

The perforation of a gastric ulcer in a physician's office is sufficiently impressive to cause some speculation. It is natural to inquire, in such a case, whether or not any part of the diagnostic procedure was responsible. I have wondered especially whether there could be any hazard connected with the manipulation of the barium-filled stomach behind the fluoroscopic screen.

It has long been taught that the palpation of a stomach suspected of ulcer should be done with the utmost gentleness. For instance Aaron[1] says: "The epigastric pain is increased on pressure. Regarding the inadvisability of exerting much pressure in testing the sensibility at this spot, Brinton advises caution with respect to the pressure test; not only must it be applied with great care and delicacy in the first examination of a supposed case of gastric ulcer, but, as a rule, we can scarcely be too reluctant to repeat it. Its effects are sometimes so injurious that it is necessary strictly to prohibit the patient from all manipulations of the epigastric region, as well as from all pressure produced by dress or work."

Yet it is true that the roentgenologists find it necessary to use deep pressure and massage in fluoroscopy, and that their manipulations are at times rather vigorous.

REPORT OF CASE

A man, aged 54, gave a history, pointing to ulcer, characterized by attacks only in the spring, for fourteen years. There was occult blood in the stool on a bloodless diet, and occult blood in the stomach contents, with 60 per cent. hemoglobin. The total acidity of the stomach contents was 66, with yeast cells present. The roentgen-ray examination revealed, on the greater curvature of the stomach, a constant spastic contracture present on the fluoroscopic screen and in the roentgenograms. The latter did not show the duodenal cap, but it was present on the screen and was normal in contour. There were no marked irregularities of the stomach outline other than that mentioned on the greater curvature; the diagnosis was ulcer of the prepyloric region of the stomach.

There was no six hour residue. After the roentgen-ray examination, the patient went home with a friend and ate a little bread and milk. In seven hours, he was back in the office to hear the conclusions in the case. As we were talking, he was seized with a sudden, severe pain in the abdomen, and became very pale, and began to sweat. He was moved to a hospital, where a surgeon performed a laparotomy. There was a large perforation where the roentgenologist had located the ulcer. For six days he did very well, but on the seventh grew suddenly worse and died.

1. Aaron, C. D.: Diseases of the Digestive Organs, Philadelphia, Lea & Febiger, 1921.

Special Articles

THE ESCANABA HYPERPYREXIA

REPORT OF A SPECIAL INVESTIGATION

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AND
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[NOTE.—The case of alleged hyperpyrexia in Escanaba, Mich., created such nation-wide interest through the sensational publicity in the press that THE JOURNAL concluded that it would be desirable that the facts be known. Arrangements were made, therefore, for an investigation, a report of which follows.—ED.]

Our investigation of the case of Evelyn Lyons resulted in a diagnosis of malingering by an hysterical woman, with the usual background of conscious and subconscious motives and with no feature of exceptional nature that would warrant devoting to it any particularly serious attention had it not been for an extraordinary notoriety given it by the press. On our arrival in Escanaba we located Dr. Harry C. Defnet, the attending physician, at St. Francis' Hospital. We first secured the past history of the patient, which was long and varied.

She had at one time or another consulted nearly every physician in Escanaba, and several in other localities, including Chicago, where she had left her thyroid gland. Another physician had removed her appendix. Dr. Defnet and other physicians in Escanaba recounted episodes in which she had figured, that savored strongly of hysteria and malingering. At one time Dr. Defnet had been called on to remove from the bladder a fragment of rubber tubing which she had inserted in an alleged attempt to catheterize herself. During her sojourn in the St. Francis Hospital for this minor operation she had acted emotionally and capriciously, causing great annoyance to the sisters, with whom she was *persona non grata* at the time of the investigation.

During the period of time in which, according to the reports in the press, she had the remarkably high fever (from 108 to 114 F.), she had repeatedly spurned medical advice. It had not been possible to make her go to bed at home or to get her into the hospital until on one occasion the civil authorities were invoked and she had to be conveyed thither in a patrol wagon. She had then remained at the hospital for but two days and a half, when she walked out of her own volition. On the Sunday of her arrival there a temperature of 101.4 F. was recorded, but for the next two days the temperature and pulse records, as taken by the nurses, were normal. At that time the readings observed by her physicians were regularly high.

The patient had had some experience in nursing and had a smattering of medical knowledge. She was involved in legal proceedings over a broken love affair at the time of this visit. All in all, the past history bristled with evidences of abnormal emotional behavior of the type which we associate in our minds with the words hysteria and malingering. In fact, so strong was the presumptive evidence of fraud that it seemed in reality almost unnecessary to examine the patient herself. During the twenty-four hours preceding the investigation, she had "carried on" in an awe-inspiring

manner, had been given large doses of morphin without the slightest visible effects and had been catheterized at times. Dr. Defnet stated to the investigators that her temperature had been recorded at 118 F. at 7 a. m., March 11, and that it seemed unlikely that she would live through the day.

The investigation now proceeded to the patient's home, where the investigators asked Dr. Defnet to catheterize her again and provided him with a pint vacuum bottle into which to deliver the urine. The temperature of the urine in the vacuum bottle was then read by means of two chemical thermometers of known accuracy, both registering between 36.8 and 37 C. (98.4 to 98.6 F.). One of the observers now placed an ordinary clinical thermometer in the usual way in the patient's mouth and left the patient to her own devices. She sent the mercury up to 109 F., or as far as it would go in this thermometer. One of the large chemical thermometers with the bulb in the axilla registered 36.8 C., apparently without her knowledge that a second instrument was being used. Thus, obviously, she had manipulated the mouth thermometer.

The patient was now informed that the physicians were acquainted with her deception. She replied with a storm of protest and a refusal to cooperate further in the investigation. Nevertheless, the investigators persisted and endeavored to secure a reading with a thermometer in the patient's mouth, under actual observation. She attempted repeatedly to remove the thermometer, taking it from her mouth and holding it upside down while arguing with the observers, moving it wildly around in her hand, voicing her fears that she might break it, etc.; indeed, Dr. Defnet stated that she had thus broken several thermometers. Finally she was induced to submit to a mouth reading and the result was normal. The patient was again asked as to her method of deception but again refused to submit any information. The physicians arranged therefore to duplicate the second test made, this time, however, keeping the patient, unaware that she was being watched, under actual observation. When left alone with the clinical thermometer in her mouth, she removed it, read it rapidly, arched her body and placed her hands under the bed coverings. She then returned it to her mouth, and when the physicians entered the room it was found that the mercury column had ascended to the top of the tube. One of the investigators then demanded that she produce the hot water bottle. She sat up in bed, searched wildly among the coverings and mattresses, and finally produced a small very hot, hot water bottle. The patient's mother stated that she had regularly kept the bottle filled for her since she complained of pains in the back and abdomen.

If from the medical standpoint there was aught to be said—and in view of the fact that so many physicians who saw her failed to make a correct diagnosis, something should be said—it would be: (1) that it is highly important in such cases to elicit and write down a complete clinical history; (2) that it is well to know that when large doses of morphin fail to affect a pain in the slightest degree the "pain" may be spurious. It is important to realize (3) that when a patient appears to be suffering from some very grave symptoms, but still behaves in a casual manner and refuses to go where the condition can be investigated and treated effectively, a discrepancy exists which requires explanation—a discrepancy between the gravity of the alleged condition and the mental attitude of the patient toward it. Finally, (4) symptoms so extraordinary as the alleged symptoms were in this case should be very thoroughly investigated before they are given publicity.

THE CARE AND FEEDING OF INFANTS

(Continued from page 695)

[NOTE.—This is the eleventh of a series of articles on the care and feeding of infants. It is addressed to the general practitioner rather than to the pediatric specialist. When completed, the series, somewhat elaborated, will be reprinted in book form.—ED.]

PRINCIPLES GOVERNING THE PREPARATION OF MILK MIXTURES

So far as it has been developed by the scientific knowledge of the present day, the basis to be recommended for the artificial feeding of average normal infants is the unit requirements in fat, protein, carbohydrate, salts, water and accessory food factors per pound or kilogram of body weight.

It is therefore evident that there must be a rational understanding of the infant's digestive and metabolic processes as concerns the individual ingredients of his diet, and that the quantitative relationship of the individual components of the diet to these physiologic processes must be duly considered. It soon becomes evident that while in many instances one or more of the food elements may cause digestive disturbance, poorly balanced combinations of these elements have a far greater influence on its development. If all the ingredients are in excess, it may cause a general upset to develop rapidly; but the insufficiency of one or more of the ingredients usually results in the more chronic type of nutritional disturbances. One of the best illustrations of the latter type is seen when proper quantities of fat and protein are fed but the carbohydrates are insufficient. A similar but less constant picture presents itself when fat is insufficient in an otherwise well balanced diet.

It is therefore necessary to consider, first, the fundamental principles governing nutrition, basing these on knowledge not only of the digestion, absorption and later metabolism of the individual food elements, but also of their relative action. It must also be remembered that an improperly constituted diet reacts on both the quantity and quality of the digestive secretions, affords pathogenic bacterial flora a suitable medium in which to develop, and accelerates or delays the intestinal reaction, having thus a direct effect on the infant's development.

While the chemical composition of the diet must be most carefully considered, its quality, as regards its freshness and purity, is equally important. Therefore, in providing a suitable food, its source, subsequent handling and finally its proper modification must be supervised. A study of the literature arising during the last half century, concerning the many theories and methods advanced for the feeding of infants, emphasizes that *no substitute has been found for human milk.*

When an infant is fed on food not primarily intended for its use, attempts at adaptation must be made, and their number as mentioned in the literature shows conclusively that no single method can possibly meet all demands.

Realizing that rigid dogmatism will ultimately lead to confusion, it is our object here to formulate prin-

ciples of feeding which are adaptable to the majority of well babies and will allow for their physiologic development. The discussion of the feeding of sick infants will be considered later. Such principles, to be worthy of recommendation, must permit of elasticity in the administration of individual ingredients and must be based on our present knowledge of the needs of the body for growth and development. *It is to be remembered that the diets to be recommended, although meeting the requirements of most infants, will be excessive for some and inadequate for others. Infants differ in their use of the food administered.*

In formulating a scientific basis for infant feeding, we must recognize that at present no hard and fast rules can be laid down for clinical application. Our present methods are still more or less empiric, and the result is dependent to a considerable degree on the wide range of food tolerance of the healthy infant. Hence in order to insure success the physician must depend on his own clinical observations.

The needs of the normal breast-fed infant are well known. The breast-fed infant taking 2½ ounces of milk per pound of body weight receives fat, 2.6, protein, 1.1, and carbohydrate, 5 gm., daily for each pound of weight. So long as he receives daily 2½ ounces of breast milk per pound of his body weight, it matters little to him whether he is given frequent feedings of small amounts or the more desirable larger individual feedings at longer intervals.

It should be emphasized that the needs of the artificially fed infant for the various food elements must be interpreted on the same basis of unit requirements per pound or kilogram of body weight. If the adoption of this method were to secure no other result than to cause a collection of facts from the various clinics for comparative study, it will have served a good purpose.

In the past, percentages of the food elements in their relation to the total milk mixture have been used, orders being written for two-thirds milk mixture, plus 5 per cent. carbohydrate, or a mixture containing fat, 2 per cent., protein, 1 per cent., and carbohydrates, 6 per cent., etc. This, more than any other method, has led to the many so-called schools of infant feeding and possible misinterpretation of end-results. In our present consideration of the infant's food requirements, his needs in fat, protein, carbohydrates, salts and water will be discussed with regard to each pound or kilogram of body weight, secondary emphasis being given to the percentages in the mixture. The German schools of pediatrics were the first to emphasize the caloric requirements of the infant and to make use of these as a basis for calculating food supply. This led in many instances to unbalanced diets, because heat units were thought of rather than food elements. The caloric content of the diet will be considered, therefore, chiefly as constituting a check on overfeeding and underfeeding as a whole and not as a basis for constructing diets.

The question presenting itself to the practitioner is this: Can this principle be practically applied in everyday infant feeding?

Every formula with which feeding is begun should be looked on as experimental, and the reaction of the infant to this feeding should be carefully studied.

If these principles are borne in mind, many an obstacle to successful infant feeding will be overcome.

The attempts toward ultrarefinement of the infant's diet have led to considerable confusion because of the different conclusions of the various schools. Eventually infant feeding will be placed on a thoroughly scientific basis. This, however, does not answer the present-day needs, *which call for a safe and practical solution of the feeding problem for the every-day baby in everyday life.* Feeding advice commonly comes from food manufacturers, and if one preparation is not successful a rapid transition is made from one proprietary baby food to another, with untold detriment to the infant. In clinical experience, the rules advocated for feeding the normal healthy infant *on simple milk mixtures with carbohydrates added*, with further suggestions for the underfed, have been found safe for the baby and practical for the physician, which latter is to be neither overlooked nor taken lightly.

DATA AS TO FOOD AND FOOD REQUIREMENTS USED AS A BASIS FOR ESTIMATING THE DIET OF INFANTS

Average cow's milk contains the percentages given in Table 14.

TABLE 14.—CONTENT OF COW'S MILK

	Per Cent.
Fat	4.0
Protein	3.5
Carbohydrates	4.5
Calcium oxid	0.172

TABLE 15.—GRAMS OF FOOD ELEMENTS NEEDED AS A MINIMUM IN TWENTY-FOUR HOURS BY THE AVERAGE NORMAL ARTIFICIALLY FED INFANT

	Per Pound	Per Kilogram
Fat	1.8	4.0
Protein	1.5	3.5
Carbohydrates	5.0	11.0
Calcium oxid	0.08	0.17
Water	90.0	200.0

The grams of food elements needed as a minimum in twenty-four hours by the average normal artificially fed infant are given in Table 15. The milk or cream and skim milk needed to supply fat and protein will average 2 gm. of sugar. It will therefore be necessary to add the amount needed in excess of this, one-tenth ounce (3 gm.) per pound, or 6.6 gm. per kilogram.

For each gram of food elements in the mixture, the ingredients listed in Table 16 must be added.

TABLE 16.—INGREDIENTS TO BE ADDED FOR EACH GRAM OF FOOD ELEMENTS

Fat	3/10 oz., or 6 c.c., of cream 5/6 oz., or 25 c.c., of milk
Protein	1 oz., or 30 c.c., of milk or skim milk
Carbohydrates	1/30 oz., or 1 gm., of sugar
Calcium oxid	18.5 oz., or 600 c.c., of milk or skim milk

TABLE 17.—REQUIREMENTS FOR EACH POUND OF BODY WEIGHT

Fat (1.8 gm.)	1½ oz., or 45 c.c., of milk
Protein (1.5 gm.)	1½ oz., or 45 c.c., of milk or skim milk
Carbohydrates (3.09 gm.)	1/10 oz., or 3 gm., of sugar
Calcium oxid (0.08 gm.)	1½ oz., or 45 c.c., of milk or skim milk

TABLE 18.—REQUIREMENTS FOR EACH KILOGRAM OF BODY WEIGHT *

Fat (4.0 gm.)	25 c.c. of cream; 100 c.c. of milk
Protein (3.5 gm.)	100 c.c. (of milk or skim milk)
Carbohydrates (6.6 gm.)	6.6 gm. of sugar
Calcium oxid (0.172)	100 c.c.

* No allowance made for protein in cream. Protein figured at 3.5 per cent. in milk.

(To be continued)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

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SATURDAY, MARCH 17, 1923

SOME LIMITATIONS OF ALKALI THERAPY

Aside from their somewhat indefinite employment in the treatment of a variety of unrelated "minor ills," alkalis have found a more extensive and rational application in the treatment of so-called acidosis and in gastric ulcer. The use of sodium bicarbonate to avert the disastrous effects of an impending coma in diabetes has often been attended with almost dramatic results in the direction of improvement. The doses have sometimes been very large, amounting to 30 or 40 grams a day.

Among the practitioners in this field, there has latterly been a marked change of sentiment. Joslin [1] of Boston, for example, who was formerly an advocate of alkali therapy, now frankly states that, although a diabetic patient theoretically needs alkali, the dangers attendant on its use in the treatment of the acid intoxication far outweigh the advantages. Specifically, he points to the possibility that the administration of alkalis over long periods may deplete the body salts, such as chlorids, which are distinctly useful. Another danger from the use of alkalis is the occurrence of nausea and vomiting, and this is real, though greatly lessened when chalk is combined with the sodium bicarbonate. When alkalis are given, large quantities of urine must be voided to remove the salts of the acid. The quantity of liquid that must be ingested is so large as to overburden the stomach, and the excretion of so much acid frequently overwhelms the kidneys, and they cease to act.

Alkali therapy has also found widespread favor in the treatment of peptic ulcer. The chronicity of the disease is so often ascribed to the irritant action of the gastric acid that the neutralization of the latter presents a rational aspect. To promote the healing process, sodium bicarbonate, calcium carbonate, magnesium oxid and bismuth subcarbonate have been used. In many instances such treatment, as the frequent successes reported in THE JOURNAL attest, has been decidedly favorable.[2] Hardt and Rivers [3] have called attention to groups of cases in which symptoms of intoxication arise under alkali treatment. Patients with duodenal ulcer treated by the Sippy method may develop definite symptoms of toxemia associated with renal changes, increased blood urea, and normal or increased carbon dioxid combining power of the plasma. The gastric acidity during the period of toxemia is usually normal, or there is hyperacidity. When ulcer and renal complications are simultaneously present at the start, these toxic manifestations are more likely to appear and develop to a greater degree. Possibly the outcome is an expression of the as yet ill defined complex termed alkalosis. At any rate, whatever the upset which leads to untoward effects may be, therapy is likely to progress more satisfactorily when its limitations in any direction are better appreciated.

1. Joslin, E. P.: The Treatment of Diabetes Mellitus, Philadelphia, Lea and Febiger, 1917, p. 394.

2. Sippy, B. W.: Gastric and Duodenal Ulcer, J. A. M. A. **64**: 1625 (May 15) 1915.

3. Hardt, L. L., and Rivers, A. B.: Toxic Manifestations Following the Alkaline Treatment of Peptic Ulcer, Arch. Int. Med. **31**: 171 (Feb.) 1923.

4. Dragstedt, L. R.: The Pathogenesis of Parathyroid Tetany, Am. J. Physiol. **63**: 408 (Feb.) 1923; Am. J. Physiol. **59**: 483, 1922; The Pathogenesis of Parathyroid Tetany, J. A. M. A. **79**: 1593 (Nov. 4) 1922.

OLD THEORIES AND NEW FACTS REGARDING THE TETANY DUE TO PARATHYROIDECTOMY

Tetany is a symptom with which the clinician is not infrequently called on to deal. It is, furthermore, a phenomenon that can be produced experimentally in animals through surgical extirpation of the parathyroid glands. This fact has made it more easy to study the pathogenesis of tetany in order to secure directive clues with respect to effective treatment and prevention. The investigations have consequently resolved themselves largely into a consideration of the functions of the parathyroid glands. A recent writer has summarized the unsatisfactory state of present-day knowledge by pointing out the three foremost theories now being debated; namely, that the parathyroids control the metabolism of guanidin and by so doing regulate the tonus of the muscles; that they regulate the metabolism of calcium; that they are involved in the acid-base equilibrium of the body, so that their removal may cause alkalosis. The parathyroids have also been alleged to control the metabolism of sugar to some extent.

The significance of these theories has been reviewed from time to time in THE JOURNAL. Within the last year, evidence collected by various methods in several laboratories has seemed destined to bring the problem of parathyroid tetany somewhat nearer to a solution. At the University of Chicago, Dragstedt [4] has observed that completely thyroparathyroidectomized dogs could be kept alive, at least for a year, by diets containing large amounts of lactose. Such a regimen brings about a complete suppression of bacterial proteolysis in the intestine and the resultant production of intestinal

poisons. It was concluded that parathyroid tetany or depression is due to an intoxication, and that the responsible toxic substances come chiefly from the gastro-intestinal tract. They are supposed to arise through the activity of the proteolytic group of intestinal bacteria, and are probably for the most part protein cleavage products of the nature of amins. The function of the parathyroid glands is to prevent intoxication by these poisons. According to Dragstedt, the parathyroid glands do not furnish a hormone necessary for life, and dogs may be kept alive indefinitely after their removal, if treatment directed to the prevention of this toxemia of intestinal origin is carried out. Dragstedt further reports that, after a period of rigorous dietary control, parathyroidectomized dogs may be placed on mixed rations without developing tetany or depression. The mechanism of this readjustment to the loss of the parathyroids is not entirely clear, but it seems to him most likely that some other organ, probably the liver, has taken over the function of the missing tissue. However, the animals are far more susceptible to untoward dietary influences, spoiled foods and meat in particular, than are normal subjects.

In the same laboratory, Luckhardt [5] and his co-workers have found that completely parathyroidectomized dogs can be kept alive, without showing tetany, on a diet very rich in meat, by means of the oral administration of calcium lactate. After a time this can be stopped entirely without the appearance of tetany. The spontaneous tetany occurring thereafter at irregular intervals, presumably because of constipation or the ingestion of large quantities of unspoiled or small quantities of putrid meat or other spoiled food, can be rapidly controlled by the ingestion of calcium lactate and by the giving of enemas. On this basis, Luckhardt believes that the rôle of this calcium compound in preserving the life of completely parathyroidectomized animals is quite complex. It does not seem probable that calcium salts act by meeting a deficiency of tissue or blood or lymph calcium on the view held years ago that the tetany after removal of the parathyroids was due to a loss of body calcium (calcium diabetes).

In harmony with the foregoing findings, studies of Salvesen [6] at Christiania indicate the importance of the calcium factor in tetany. The advantage of the innocuous milk diets is assumed to lie in their yield of calcium in contrast with meat, which is deficient in this element. Meat diet lowers the calcium content of the blood and leads to symptoms of tetany; administration of milk or of calcium salts counteracts this. From the standpoint of Salvesen's experiments, the characteristic feature in the chemistry of parathyroid insufficiency is the drop in blood calcium, which is more marked the more parathyroid tissue is removed. They suggest that the parathyroids control the calcium metabolism, and by doing so they influence the function not only of the muscle and nerve tissue, but probably of all organs. When the parathyroids are removed, the threshold for the excretion of calcium in the intestine is lowered. How Dragstedt's observations on the effects of dietary regulation in the prevention of tetany can be made to harmonize with the experiences of the other investigators remains to be learned. Perhaps the undoubted lack of calcium brought about through parathyroidectomy affects the permeability of the intestinal or other cells to poisons of intestinal origin; if so, the difficulty might conceivably be remedied either by supply of the element or by removal of the toxins. It remains for further investigation to develop an explanation that will encompass all the now known facts.

5. Luckhardt, A. B., and Goldberg, B.: Preservation of the Life of Completely Parathyroidectomized Dogs, J. A. M. A. **80**: 79 (Jan. 13) 1923. Luckhardt and Rosenbloom: Proc. Soc. Exper. Biol. & Med. **19**: 129, 130, 1921; Science **56**: 48 (July) 1922. Luckhardt and Blumenstock: Science **56**: 257 (Sept.) 1922.

6. Salvesen, H. A.: Studies on the Physiology of the Parathyroids, Proc. Soc. Exper. Biol. & Med. **20**: 204 (Jan. 17) 1923.

KEEPING THE BLOOD "FIT" BY EXERCISE

In the modern cult of personal hygiene, physical exercise occupies an exalted position. The experiences of thousands of persons attest the benefits that may be derived from various forms of vigorous activity. Here, as in many other instances in which the pendulum of interest swings rapidly from one enthusiasm to another, it is not always easy to identify the advantages, or to foresee the possible harms. It sometimes happens that the attempt to analyze our experiences meets unexpected difficulties, or fails to reveal any rational basis for the accepted beliefs. This has in large measure been the case with the physiology of exercise. A study of current textbooks is illuminating in this respect. They point to increased circulation, respiration, elimination, metabolism and neural activity as beneficial effects of exercise; yet one might equally well argue that these are an inevitable incident or necessary concomitant of muscular contraction rather than a specially advantageous by-product. One popular writer,[1] for example, points out that in vigorous activity there is an increase in the force and rate of the heart, the respirations are increased in depth and frequency, perspiration becomes more marked, and more waste is eliminated. There is in this heightened activity of the body systems a more or less complete change in the liquids of the body. He asserts that combustion of chemical compounds in the cells releases new energy; old accumulations of waste are removed, and all the mechanisms for action are put in tune. Even reflective states, he adds, are assisted by exercise, although, if carried to the point of fatigue, mental activity afterward is slowed down; and it is concluded that the scientific use of exercise involves the selection of forms and the extent of action that will favor best the particular somatic result desired.

Unfortunately, these considerations are too indefinite as to the physiology of exercise. No one questions

1. Williams, J. L.: Personal Hygiene Applied, Philadelphia, W. B. Saunders Company, 1922, p. 120.

that it may be good for the body in many ways. But precisely why? A muscle becomes weakened through disuse, and ultimately atrophies. Its functional ability is maintained and enhanced by exercise, and strong, well developed muscles are an obvious advantage. Recently, Broun[2] of the Rockefeller Institute for Medical Research has added a new chapter to the physiology of exercise, pointing to the probability that it stimulates the hematopoietic system to increased efficiency. The conclusion is based on observations of the effect of vigorous muscular activity, exhibiting itself in blood destruction. A slight decrease in the total red cell volume and hemoglobin content of the organism frequently occurs during a single day of exercise in animals previously kept under sedentary conditions. As Broun has fancifully expressed his scheme of experiment, animals long accustomed to sedentary life, and in which presumably little blood was being destroyed or made, were exercised vigorously with the idea that the blood-forming tissue might be "caught napping" and not at once make up such unusual corpuscle losses as exercise would entail. This is precisely what seems to happen, and it is particularly evidenced by the increase in the number of reticulated red corpuscles in the peripheral circulation such as always follows hemorrhage or other unusual demands made on the hematopoietic tissues for new cells.

Broun argued that the loss of blood cells which has been demonstrated in sedentary individuals after vigorous exercise produces a temporary anemia in them only because their blood-forming tissues are not in condition to compensate for the increased corpuscular wear and tear. Further investigation by him has now shown that a course of "training" through exercise greatly facilitates the functioning of the bone marrow. The latter adapts itself to the increased demands made. For this reason, in normally active individuals a virtually constant balance is maintained between blood destruction and blood formation in spite of occasional unusual exertions such as may be supposed to cause a temporarily increased blood destruction. These investigations have contributed an important chapter to the science of the physiology of exercise. They show that it must be an important factor in the maintenance of an efficient hematopoietic tissue. Anatomic evidence points in the same direction; for Külbs[3] long ago observed at necropsy that exercise increases the amount of red marrow. Perhaps precise information of this character will before long give a more specific meaning to the current vague statements regarding the power of exercise "to develop the organs of the vital systems."

2. Broun, G. O.: Blood Destruction During Exercise, J. Exper. Med. **36**: 481, 1922; **37**: 113 (Jan. 1) 1923; **37**: 187, 207 (Feb. 1) 1923.
3. Külbs: Verhandl. d. Kong. f. inn. Med. **26**: 197, 1909.

Medicine and Superstition.—Modern medicine is linked to the age of superstitious beliefs, of amulets and exorcisms, by its attitude toward treatment, and especially to "cures."—Sir James Mackenzie, *Brit. J. Tuberc.* **17**:14 (Jan.) 1923.

Current Comment

THE EXPENDITURE OF ENERGY IN EXOPHTHALMIC GOITER

There are numerous statistics available to show the augmentation of metabolism in exophthalmic goiter. The increase in the basal exchange not infrequently amounts to more than 50 per cent., and is usually roughly proportional to the severity of the disease. Du Bois has recorded a rise of 87 per cent. in one case. This shows itself, of course, in the total energy transformations of the patients, who sometimes require a daily food intake of 5,000 calories to maintain weight, even when they are confined to bed. One can scarcely attribute all of this increment to the characteristic nervousness and restless muscular activity on the basis of the usual expenditure of energy for the contractile processes. Plummer and Boothby[1] have therefore determined the actual "net cost of work" in terms of energy calculated from respiratory data on various persons. Normal persons expended an average of 1.18 gram calories over the basal metabolism for each horizontal kilogrammeter of work at the approximate rate of 800 meters an hour. The cost was no greater in several patients in a debilitated condition. In contrast, however, patients with exophthalmic goiter under identical conditions of work required an average of 2.28 gram calories. The "net cost" could be reduced by operative procedure for relief of the hyperthyroidism. Plummer and Boothby are convinced that persons with moderately severe exophthalmic goiter are very inefficient in converting potential energy into any kind of motion, as they require twice as much food fuel as do normal persons for the same work. This type of disease is associated with a characteristic increase in the number of useless movements; but, in addition to this, each movement requires approximately twice the normal amount of energy for its accomplishment.

TYPHOID FEVER IN 1922

Our annual summary of typhoid death rates in the large cities of the United States, which appeared last week, shows a continuance of the typhoid decline which has been so striking a factor of the epidemiology of this disease for the last twelve years. The slight interruption to the steady downward curve which occurred in 1921 was more than overcome in 1922, and the truly astonishing rate of 3.15 per hundred thousand has been reached. This is a little less than one sixth of the rate (19.59) for the large cities of this country in 1910. Three cities with an aggregate population of 473,975 were able to report a perfectly clean slate, not a single death from typhoid having occurred within their borders during the calendar year 1922. The main causes of indigenous urban typhoid in the United States at present seem to be contact with typhoid cases and typhoid carriers—a steadily diminishing hazard, occasional cases from contaminated shellfish and from bathing in polluted water, and, perhaps in some cities, from

1. Plummer, H. S., and Boothby, W. M.: The Cost of Work in Exophthalmic Goiter, Am. J. Physiol. **63**: 406 (Feb.) 1923.

the improper disposal of excreta. Relatively few cases appear to be caused by polluted drinking-water, by milk supply, or, in the Northern cities, by inadequate sewerage. A considerable, if indeterminate, number of the typhoid deaths that occur in the large cities do not originate in the city itself, but are due either to infection contracted outside or to cases brought in for treatment. It is evident that not much further reduction in city typhoid rates can be expected until a diminution in rural typhoid can be brought about. In 1920, the rural death rate for typhoid, as reported by the Bureau of the Census, was nearly double the rate in the urban population. This condition is more marked in some parts of the country than in others. It is also true that in states with a large negro population typhoid rates are higher among the negroes than among the whites, for the same reasons probably that determine excess of typhoid in rural districts. The most encouraging feature of the whole typhoid situation is that our large American cities are no longer distributing centers of typhoid, black plague spots radiating corruption into the surrounding countryside. The two great agencies of typhoid dissemination, polluted water supplies and raw milk, are largely eliminated, and while cities of from 10,000 to 100,000 population have unquestionably much progress to make, especially in control of the milk supply, the condition in the larger cities for the most part may now be regarded with pride instead of being pointed to with obloquy as awful examples.

THE EXCRETION OF VITAMINS

The depletion of the body in vitamins, when these factors are not included in the food intake, is indicated by a variety of considerations. Most students of the subject are agreed that these food factors are not synthesized in the organism, so that the latter is dependent on exogenous sources for its supply. It is conceivable that the vitamins are destroyed in the body, either in the course of those reactions in which they may be physiologically concerned, or as an incident of the general chemical changes that proceed in the tissues and are usually comprehended in the expression metabolism. At any rate, it is known beyond question that all the familiar vitamins, A, B and C, pass into the milk, their content in this secretion apparently being modified by that of the intake. Equally plausible is the hypothesis that, instead of being stored or destroyed, the vitamins are eliminated from the body from time to time through the excretions, and are thus lost to the economy. Several years ago, Muckenfuss in this country asserted that traces of the antineuritic vitamin may be found in the human urine. Furthermore, the alleged presence of vitamin in the bile leads to the possibility of its loss with the feces. Now Van der Walle [1] of Eijkman's Laboratory at Utrecht brings added evidence in the same direction, with the further suggestion that the content of vitamin in the urine varies with the diet. Even more recently, Cooper [2] has demonstrated that vitamin A, if introduced in sufficient quantity into the body, may pass into many of the secretions, including the urine. She suggests that the "alimentary vitaminuria" on diets rich in vitamin A probably indicates a limited capacity of the organism to store or destroy this factor. If this is further substantiated, the necessity of not allowing an unfavorable vitamin "balance" to arise in nutrition becomes an obvious deduction.

1. Van der Walle, N.: The Presence of the Antineuritic and Antiscorbutic Vitamins in Urine, Biochem. J. **16**: 713, 1922.
2. Cooper, Ethel: The Distribution of the Vitamin A in the Urine and the Digestive Secretions (Man, Dog), Am. J. Physiol. **63**: 425 (Feb.) 1923.

Association News

THE SAN FRANCISCO SESSION

American Medical Scenic Special

A special train has been arranged for to leave Chicago over the Burlington Railroad at 11 p. m., June 20. Stops will be made at Aurora, Mendota, Galesburg, Burlington, Ottumwa, Creston, Council Bluffs, Omaha, Lincoln, Denver, Colorado Springs, Glenwood Springs and Salt Lake City. This train will arrive at Omaha at 3:50 p. m., and at Lincoln about 5:30 p. m., June 21; at Denver at 7:30 a. m., June 22, where a short stop will be made, and at Colorado Springs at 10:30 a. m., June 22. A stopover of approximately twenty-four hours will be made at Colorado Springs to permit sightseeing trips to the Garden of the Gods, Pike's Peak and other places of interest. Sleeping cars will be placed conveniently, while at Colorado Springs, to meet the convenience of the party. Leaving Colorado Springs at 4 a. m., June 23, opportunity will be had to see the Royal Gorge and the Canyon of the Arkansas in daylight. About five hours will be spent in Salt Lake City, June 24. From Salt Lake City, the train will proceed over the Western Pacific Railway, known as the Feather River Canyon route, which offers some of the most interesting sights between Chicago and the Coast. San Francisco will be reached at 5:30 p. m., June 25. This special train will be made up of the finest Pullman equipment, with dining car and observation car. More specific information can be secured by addressing J. R. Van Dyke, General Agent, Passenger Department, C. B. & Q. Railroad, 179 West Jackson Boulevard, Chicago.

Clothing for California Comfort

We are receiving a number of inquiries regarding the climate and character of clothing to be worn at the time of the meeting of the American Medical Association here the last week in June. At this time of the year it is likely that there will be a certain amount of wind, some fog, and the evenings will be quite chilly. Rain is not expected at this time of year, and the days will be pleasant and delightful.

Persons coming to the annual meeting should bring overcoats and evening wraps; furs are worn by San Francisco ladies in the evening at this time of year. In the southern part of the state and the central valleys the climate will be very much warmer, corresponding somewhat to the summer climate in the Eastern states. In the mountain districts and the mountain resorts the climate will more nearly approach that of San Francisco. Persons who expect to travel much in this state will be more comfortable with the ordinary weights of underclothing and with overcoats and wraps to meet the varying climates in different parts of the state.

W. E. MUSGRAVE,
Chairman, Local Committee of Arrangements.

GROUP SUBSCRIPTIONS TO HYGEIA

At a meeting of the Genesee County Medical Society, Michigan, it was voted to send *Hygeia* to each school in the county. The society forwarded a check for $166 to cover these subscriptions. In addition to the initial subscription of more than 1,200 sent by the Allegheny County Medical Society, a later order for 446 subscriptions was received. These include the heads of charitable organizations, public officials, presidents of women's clubs, educators, clergymen and public libraries. The society offers to increase this

amount still further, provided the introductory subscription is left open. Other local societies have also sent in group subscriptions to *Hygeia*, among them, Pierce County, Washington; Cascade County, Montana; Genessee County, Michigan; Lake County, Indiana; Fergus County, Indiana; Portage County, Ohio, and Douglas County, Wisconsin. A number of societies have reported that the matter will be considered at the next meeting.

ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE, PUBLIC HEALTH AND HOSPITALS

Held in Chicago, March 5, 6 and 7, 1923

MEDICAL EDUCATION

MARCH 5—MORNING

The congress met in the Florentine Room of the Congress Hotel, and was called to order by Dr. Arthur Dean Bevan, chairman of the Council on Medical Education and Hospitals.

DR. LOUIS B. WILSON, Rochester, Minn., presented a report on Graduate Medical Education, which is reported on page 790.

Coordination of Courses of Instruction to Increase the Efficiency of the Medical Curriculum

DR. E. STANLEY RYERSON, Toronto: The subjects of the present curriculum are taught too independently in what is aptly called a "water-tight compartment" system. There is a lack of coordination between the fundamental medical sciences (anatomy and physiology) and the clinical subjects. The present method fails to educate the student in anatomy and physiology in such a way that he can recall and apply the principles learned when the occasion arises. This defect is attributed to (*a*) nonuse of clinical subjects to stimulate the student's interest in the first two years; (*b*) lack of opportunity for the student to apply his theoretical knowledge at the time he is learning it; (*c*) lack of opportunity for the student to develop a sufficient number of associated ideas, more especially between the theoretical fact and its practical applications; (*d*) the presence in the mind of the student of the false attitude that these subjects are completed once the examinations in them are passed; (*e*) the lack of any basis on which the student can select the important from the less important facts, and thus gain a thorough familiarity with essential facts.

SCOPE OF REVISED CURRICULUM

The present curriculum fails to provide the student with sufficient clinical experience. The lengthening of the course and the provision of repetition courses have failed to produce the desired improvement in the efficiency of the students. To overcome these defects, a revised curriculum should provide for: (1) instruction according to modern educational methods; (2) opportunity for the student to acquire an absolutely up-to-date education in medical science; (3) coordination between the various subjects, and especially between anatomy, physiology, pathology, medicine and surgery; (4) opportunity for the student to apply his knowledge at the time he is acquiring it; (5) more prolonged clinical experience for the student, by beginning it earlier in his course.

DIVISION OF SUBJECTS

The division of the subjects might be made on the basis of the particular anatomic systems to be dealt with in each year, as follows: first year, general introduction; tegumentary, muscular, articular and osseous systems; second year, cardiovascular and respiratory systems; third year, alimentary, genito-urinary and reproductive systems; fourth year, nervous system, special senses and endocrine system. In drawing up a new curriculum, consideration would have to be given to the exact way in which each fundamental scientific subject is applied in practice. It is then necessary to arrange the scientific subjects in correlation with the clinical subjects in which they are applied and numerous opportunities for the student to make the practical applications himself. The student then has not only a means of developing associated ideas, but also a persistent and active stimulus to his endeavors.

At the beginning, the student would be given a general survey of each of the main subjects of the course, namely, anatomy, physiology, pathology, medicine and surgery. He would thus gain a clear idea of the magnitude of each subject and the relationship of the subjects to one another. Thereafter, the student would acquire a detailed knowledge of tegumentary, muscular, articular and osseous systems. In anatomy, the extremities would be dissected. Their microscopic structure would be dealt with in histology. In embryology, after a study of the whole subject, the method of the development of muscles, bones and joints would be covered. The course in pathology would include (*a*) pathologic histology, (*b*) bacteriology and (*c*) general pathology accompanied by demonstrations of the principles of inflammation in its various aspects. A general introductory course in medicine would cover etiology, the methods of differentiation, the interpretation of signs and symptoms, and some of the general principles underlying the prevention of disease. In surgery, the course would cover the clinical manifestations of inflammation, and injuries as they occur in the extremities.

In the second year, all departments would devote their chief attention to the cardiovascular and respiratory systems, covering in *anatomy*, the dissection, histology and embryology of the thorax, head and neck; in *physiology*, the circulation and respiration; in *biochemistry*, the chemistry of the blood and gases in the physiology of the heart and lungs; in *pharmacology*, a general study of the various pharmacologic groups and the effects produced by drugs on the heart, lungs, breast and extremities; in *pathology*, the gross histologic changes of the heart and great vessels, lungs and pleura, breast, thyroid, lip, tongue and jaws; in *medicine*, the physical examination of the heart and lungs with the diagnosis of the diseases of these viscera, and in *surgery*, conditions of the thorax, mammary glands, neck and thyroid, the lesions of the lip, tongue and jaws, and the surgical aspect of the diseases of the circulatory and respiratory systems. Injuries and diseases of particular bones and joints would also be taken up.

In the third year, attention would be devoted chiefly to the alimentary, genito-urinary and reproductive systems. In anatomy, the dissection, histology and embryology of the abdomen and pelvis would be covered.

In the fourth year, the departments would devote the main part of the time to the consideration of the nervous system, organs of special sense and the endocrine system. The anatomy of the eye, ear, nose and throat, as well as the brain and spinal cord, would be studied. In physiology the student would take up the nervous system, special sense organs and the ductless glands. In pathology, he would note the results of disease and injury in the brain, cord and peripheral nerves and organs of special sense. In pathologic chemistry, the general disorders of the chemical processes of the body would be taken up, the student conducting individual chemical examinations. In medicine, the diseases of the nervous system and the ductless glands would be covered. The more important psychoses would be outlined. The treatment of the patient suffering from diseases would be covered in therapeutics. In surgery, the injuries and surgical diseases of these parts would be given. In obstetrics, the abnormal conditions arising during pregnancy, labor and the puerperium would form the syllabus, while in gynecology more advanced parts of this subject would be covered. In ophthalmology, the methods of examination of the eye, and testing sight would be dealt with. In otolaryngology, the methods of examining the ear, nose and throat, along with the tests for hearing, would be taught on patients. In pharmacology, the student would see the effects of drugs on the nervous system and the organs of special sense. In preventive medicine and hygiene, a course dealing with the problem of preventive medicine, hygiene and sanitation would be given. Such a course as that outlined above appears to be feasible, and its adoption would provide for a coordination of the courses, for more opportunities to develop associated ideas, and for the student to be in attendance at the hospitals for two years longer than he does at present.

Revision of the Curriculum

DR. ARTHUR DEAN BEVAN, Chicago, outlined in detail the methods he followed in an investigation regarding the objections to the present-day medical curriculum. This investigation included interviews with the professors of the various laboratories and clinical departments of the medical school, special inquiry being made in regard to the opportunities for a better correlation of laboratory and clinical subjects, and in what manner the medical curriculum might be revised so as to bring laboratory and clinical subjects more nearly parallel throughout the four years. He also secured the opinions of a large number of medical students who were in the advanced classes, having completed their clinical work, in which criticisms were obtained regarding the manner in which the various laboratory and clinical subjects were taught. Their criticism may be thus summarized:

CRITICISMS

1. The work of the first two years is too theoretical; much of it is intended primarily for research. There is too much notebook work and too little reference to clinical application. 2. Anatomy receives much criticism; there is too little lecture work and demonstration, too little individual teaching, too much instruction by student assistants, and very little clinical application. 3. The work is considered too theoretical in biochemistry. It requires time far out of proportion to its importance. It could be made to include subjects given in laboratory diagnosis. There is much criticism of this department. Pharmacology is unsatisfactory in that its practical application is not made clear to the student. Physiology does not have enough practical application pointed out and emphasized. The pathologic department, on the whole, receives more favorable criticism than any other in the first two years.

The work of the third and fourth years is thus criticized: A better course in prescription writing should be given. More discussion on therapeutics should be given in the clinics. The definite line of treatment should be given as each case is presented. More definite instruction should be given on such therapeutic agents as the roentgen ray and radium, and the clinical value of such tests as basal metabolism and electrocardiography should be made clearer.

In medicine, better courses in laboratory diagnosis are urged. The value of the small teaching clinic is recognized. Better instruction in physical diagnosis is needed, and more systematic instruction in the large teaching clinics.

It is urged that surgery be taught with ample pathologic material, both gross and microscopic, and that its clinical application be shown by the introduction of patients illustrating the various conditions discussed. The value of the large teaching clinic is recognized, and the criticism made of operating in these large teaching clinics. They feel that little or no operating should be done in these clinics. The great value of dispensary work and of the small section hospital clinic of the ward walks is recognized. The courses on dog surgery and of surgical anatomy and operative surgery on the cadaver are favorably criticized. In obstetrics, the chief criticism is that the student sees too little pathologic obstetrics. The outside obstetric cases attended by the student under tuteur and obstetric assistant instruction are appreciated by the student and criticized favorably. The instruction in the specialties—eye, ear, nose and throat and dermatology, pediatrics and neurology—receives fairly generally favorable criticism. I have also obtained from a number of interns and senior students their opinions of the fifth hospital or intern year, and they all regard it as absolutely essential, and more than 90 per cent. prefer a mixed to a single service.

PLAN FOR REVISING CURRICULUM

On the basis of the foregoing study, I venture to submit this specific plan: 1. There are certain portions of the subjects of anatomy, physiology, pathology and pharmacology which are essential in actual practice and which are used every day in clinical work and which must be mastered. 2. The sum total of the knowledge now actually required is enormous, and is sufficient to crowd the time which can be allotted to the medical curriculum. 3. The essential portions of the daughter sciences should be taught so as to make clear their application to clinical work. This necessitates a radical change in the curriculum, the introduction of the patient and the clinic at the very beginning of the medical course.

In revising the undergraduate curriculum, we must drop those portions of the sciences which have as yet no clinical application in the hands of the general practitioner. As an illustration, a large part of the formidable subjects of biochemistry and intricate neurology should be eliminated. There should be introduced into the first year a general medical clinic in charge of a broadly trained man of the Osler type. This clinic should be given once a week, and at this clinic should be demonstrated patients who represent big general clinical problems, such as diabetes, toxic goiter, jaundice, ascites, syphilis, tuberculosis and leukemia, and the use the clinician makes of anatomy, physiology, pathology and pharmacology in handling these problems should be demonstrated. At the same time, the laboratory teachers should have access to this clinical material so that they can demonstrate examinations of blood, urine, blood pressure, basal metabolism, etc., and the laboratory side of these same clinical problems. Pathology should be continued into the clinical years as a well organized department in charge of the postmortem work and general pathology laboratories and museum. The professor of pathology should act as a consultant in important problems in pathology. Whatever revision of the medical curriculum is made, there must be no conflict of authority, and there must be good teamwork.

(To be continued)

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

John A. Andrew Clinical Society.—The fifth annual meeting of the John A. Andrew Clinical Society will be held at the Tuskegee Institute, April 1-7. Dr. Richard H. Miller of the Massachusetts General Hospital and Dr. William B. Breed, Boston, will lecture and give surgical demonstrations.

Personal.—Dr. Edwin O. Williamson, Gurley, has been elected president of the Madison County Medical Society to fill the unexpired term of Dr. C. A. Grote, county health officer who has gone to Greensboro, N. C.——On the retirement of Dr. C. H. Smith, Montgomery, as physician inspector for the state convict department, the inmates of Kilby prison presented him with a gold ring as a token of their esteem.

CALIFORNIA

Physician Sentenced.—Dr. G. A. Scheuer, San Francisco, was committed to jail for thirty days, it is reported, when he pleaded guilty to violation of the prohibition act, February 21.

Personal.—Dr. Wood C. Baker, county physician of San Mateo County, has accepted an appointment as superintendent of the new San Mateo County Community Hospital to be opened at Beresford in June.——Dr. George C. Wrigley, Sonora, has been reappointed physician of Tuolumne County.——Dr. Herbert M. Evans, professor of anatomy at the University of California, Berkeley, addressed the Alameda County Medical Society, February 22.——Dr. Clarence A. Tillotson, Dinuba, was seriously injured when the automobile in which he was driving was struck by a fire engine, February 3.——Dr. John J. Sippy, Helena, Mont., has been appointed head of the public health board of San Joaquin County, with headquarters at Stockton.

COLORADO

Hospital News.—Construction work on the first three units of the Swedish National Sanatorium to be erected in Denver, will be commenced, April 1. The completed buildings will cost $500,000, and will cover about two blocks. The institution will have a capacity of 125 beds.——A $25,000 addition will be erected at the Fort Collins Hospital, Fort Collins, to

include two operating rooms and a roentgen-ray laboratory. ——The Weld County Hospital at Greeley has recently been opened.

CONNECTICUT

Public Health News.—A hearing of the Milk Regulation bill, in accordance with Section 2486 of the General Statutes, was held, March 7, in Hartford, to consider regulations regarding the manufacture and sale of ice cream and changes in the specifications for Grade A milk.——A case of yaws was recently reported from Ansonia. The health officer stated that the patient arrived in the United States two months ago from Jamaica.——The division of venereal diseases of the state department of health is holding a series of conferences, in cooperation with the Hartford Medical Society to which all physicians are invited. The first conference was given at the Hunt Memorial, Hartford, March 16, by Dr. John H. Stokes of the Mayo Clinic, Rochester, Minn.

DISTRICT OF COLUMBIA

Free Medical Treatment for Shriners.—All physicians, nurses and druggists of Washington will give free treatment when necessary to the Shriners and visitors during the session of the imperial council of the Mystic Shrine in June, it was announced by Dr. Charles S. White, chairman of the medical and Red Cross committee. This service will include emergency dentistry, eye glass repairing, nursing, and prescriptions from druggists. Twenty army ambulances and ten private ambulances will be constantly on duty and within easy call.

ILLINOIS

Lay Educational Fund.—More than 500 members of the Illinois State Medical Society have subscribed to a fund to publish in the newspapers of the state the profession's methods of serving the public, it is reported.

Smallpox at Rock Island.—Following the outbreak of smallpox at Rock Island, the city physician, Dr. A. N. Muller, has issued orders that every schoolchild must be vaccinated within the next ten days or remain away from school indefinitely. The board of health asks the public's cooperation in stamping out the threatened epidemic.

Personal.—Dr. George T. Palmer, president of the Illinois State Tuberculosis Association, lectured at Louisville recently, during the celebration of "Health Week."——Dr. Albert W. Bradford has returned to his home in Lacon from the Proctor Hospital where he has been a patient with a broken leg for seven weeks.——The Joseph A. Holmes Safety Association of Washington, D. C., has awarded the gold medal of the society to Dr. Andrew W. Springs, Dewmaine, for his heroic work in the Royalton Explosion of October, 1914.——Dr. Louise H. Keator, formerly a medical missionary to China, has been transferred to the Dixon State Hospital from the Lincoln State School and Colony.

Chicago

Personal.—Dr. Charles E. Humiston and Dr. Frederick W. Besley gave addresses at the annual banquet of the Lake County Medical Society at Waukegan, March 1.——Dr. Roy C. Flickinger, Ph.D., for four years dean of the college of liberal arts at Northwestern University, tendered his resignation to President Walter Dill Scott, March 10, to become effective, July 1.

Michael Reese Alumni Association.—There will be a meeting of former Michael Reese interns, March 22, at Michael Reese Hospital for the purpose of organizing a Michael Reese Hospital alumni association. Every ex-intern is urged to be present if possible. Those living in distant parts who may be unable to attend are requested to send their present addresses to Dr. Ralph B. Bettman, secretary of the Internes Alumni Association, Michael Reese Hospital, Chicago.

INDIANA

Personal.—Dr. Max Bahr, of the Central Indiana Hospital for the Insane, gave the last of a series of lectures on forensic psychiatry, March 8, on "Methods of Examining Insane Criminals."

Whole Family Has Smallpox.—Dr. Willis B. Huron of Tipton, county health officer, recently found the family of George W. Van Horn, a wife and three children, suffering from smallpox.

Protest Against State Laboratory Examinations.—A group of Indiana physicians whose specialty is laboratory diagnosis presented a statement to the state board of health in protest against indiscriminate examinations made by the state hygienic laboratory. It was said that at present the state laboratory examines practically every kind of specimen sent in by physicians free of charge regardless of its having any bearing on the enforcement of public health measures, or whether the patient is a proper beneficiary of free public medical service. The natural outcome of this custom is that physicians send all types of specimens from patients who can and do pay the physicians for service which the state laboratory renders free. The state thus enters into competition with physicians whose specialty is clinical diagnosis, and at the same time pauperizes the patients at the expense of taxpayers. In order to correct this particular abuse, it was suggested that physicians be required to certify that specimens forwarded which do not concern public health measures are from indigent patients to whom the physicians are making no charge whatsoever for their services. The protest was considered by the state board of health, February 14, which directed the superintendent of the laboratory to prepare a statement to the medical profession of Indiana setting forth a policy in laboratory matters, and to prepare a certificate to be used by physicians when specimens are forwarded for examination. The secretary, Dr. W. F. King, in a letter to the editor of the *Journal of the Indiana State Medical Association* said, in part, that the state board of health will go into this whole matter fully and will have in mind the good of the medical profession as well as the public, in any action that may be taken.

IOWA

Summer Course at Iowa University.—A special course for public health nurses will be a part of the summer school work at the State University of Iowa, Iowa City. The course is designed for those nurses in public health work who are unable to take the work in the regular school year. Among the courses to be given will be those in public health nursing, child hygiene, hygiene and preventive medicine, psychology, speech and sociology. The various college faculties of the entire university will be drawn on for instructors. Miss Helena R. Stewart will be director of the school.

LOUISIANA

Personal.—Dr. Richard A. Bolt, Washington, D. C., director of the medical service of the American Child Health Association, gave an address at the annual meeting of the Child Welfare Association in New Orleans, February 27.

State Medical Meeting Changed.—The annual meeting of the Louisiana State Medical Society will be held in New Orleans, April 24-26, instead of April 10-12, as previously announced. Dr. P. T. Talbot, New Orleans, is secretary of the society.

MARYLAND

Personal.—The supervisors of city charities have appointed the following staff of physicians to Bay View Hospital: Dr. Leo A. Lally, resident physician of the tuberculosis hospital; Dr. Claude G. Drace, resident physician at the general hospital; Dr. R. J. Fulton, resident hospital surgeon; Dr. I. Franklin, resident physician of the hospital for the insane, and Dr. Joseph T. Eafan, assistant resident hospital physician.——Dr. Martin F. Sloan, for eleven years superintendent of the Eudowood Sanatorium, Towson, has opened the Maple Heights Sanatorium at Sparks, for the treatment of tuberculosis.——Dr. Arthur J. Lomas, former assistant superintendent of the Johns Hopkins Hospital and at present superintendent of the Iowa State University Hospital, has been appointed superintendent to the University of Maryland Hospital, Baltimore, to succeed Dr. Kenneth B. Jones, resigned.——Dr. Charles W. Hoffman has resumed the practice of surgery and gynecology at 1102 North Charles Street, Baltimore.

MASSACHUSETTS

Massachusetts Association for Occupational Therapy.—At the second annual meeting of the association, Dr. Elliott G. Brackett was elected president; Dr. John D. Adams, vice president, and Miss Greene, secretary.

Dinner to Dr. Edsall.—The medical staff of the Massachusetts General Hospital, Boston, gave a dinner in honor of Dr. David L. Edsall, February 27, at the University Club. Dr. Edsall has just returned from abroad. Dr. Gerardo M. Balboni was toastmaster. Dr. Frederick A. Washburn and Dr. Richard C. Cabot were among the speakers.

Award for Malpractice.—It is reported $5,000 was awarded A. E. Clarke of Malden in the East Cambridge Superior

Court, March 2, in his suit for $25,000 against Dr. Clarence H. Staples of Malden. Clarke alleged that Dr. Staples did not give his leg proper treatment following an automobile accident and that as a result he is permanently lame.

New England Health Institute Postponed.—Dr. Eugene R. Kelley, state health commissioner, announced that the New England Health Institute, held in Hartford, Conn., in 1922, will not be held in Boston this year as was planned, having been postponed until 1924. This change was necessary because of the Boston Health Show, which will be held in the Mechanics Building, Boston, October 6-13.

MICHIGAN

Fellowship in Pathology for Detroit College.—Dr. George E. Potter has endowed a fellowship in pathology in the Detroit College of Medicine and Surgery, it was recently announced by the Wayne County Medical Society. The endowment amounts to $1,000 a year.

Violation of Medical Law.—According to reports, Harry L. Wise, agent for D. L. Smith of the "Vitalizer" Company, Detroit, was fined $60, with an alternative of thirty days in the House of Correction, January 12, when he pleaded guilty to a charge of violating the medical law. Smith was fined $100 on the same charge two days earlier.

MISSOURI

Personal.—Dr. Eugene A. Scharff, superintendent of the Isolation Hospital, St. Louis, was appointed superintendent of the City Hospital, recently, to fill the vacancy caused by the recent death of Dr. Rolla Henry.——Dr. Joseph K. Phipps, Grant City, was reappointed deputy state health commissioner at the last session of the county court, for a period of three years.——Edward A. Doisy, Ph.D., has been appointed professor of biochemistry at St. Louis University School of Medicine, the appointment to take effect, August 1. Mr. Doisy is at present associate professor of biochemistry at Washington University School of Medicine, St. Louis.

NEW JERSEY

Physicians Oppose Naturopathy Bill.—A meeting of physicians was held at the state house, Trenton, February 5, to protest against the passage of Assembly Bill 58, known as the Naturopathy bill. Dr. Wells P. Eagleton, Newark, chairman of the welfare committee of the state medical society, presided.

Illegal Practitioners Sentenced.—According to reports from the state board of medical examiners, A. Wilson Wood, a chiropractor of Ridgefield Park, was convicted of practicing medicine and surgery without a license, February 27.——In the case of George C. Lezenby, Camden, where the evidence showed that the defendant gave only electrical treatments, the judge of the district court dismissed the suit, holding that the board of medical examiners failed to establish any proof that the defendant had violated the medical act. On the board's carrying the case to the supreme court, the judgment of the district court of the city of Camden was reversed.

NEW YORK

Mumps at Sing Sing.—An epidemic of mumps has appeared at Sing Sing prison. Thus far, only officers and attendants have contracted the disease.

Woman Sentenced for Murder of Physician.—Mrs. Lillian Raizen was sentenced to from twenty years to life in prison, February 27, it is reported, for the murder of Dr. Abraham Glickstein of Brooklyn.

Health Officers' Conference.—State Health Commissioner Hermann M. Biggs announces that the annual state conference of health officers and public health nurses will be held at the Grand Union Hotel, Saratoga Springs, June 26-28.

Damage Suit for Necropsy.—The trial of a suit for $20,000 damages commenced by Mrs. Regina Abrahms, widow of Joseph Abrahms, who died, Jan. 28, 1921, against Dr. William H. Garvin, superintendent of the Kings Park State Hospital, and Dr. Walter H. Sanford of the staff has come before the supreme court in Brooklyn. Mrs. Abrahms charges that her husband's body was mutilated during the performance of a necropsy, and that necropsy was performed without her consent. This is denied by the defendants, who state that, at the time her husband was taken to the institution, Mrs. Abrahms virtually consented to a necropsy should he die there. It is also stated that Mrs. Abrahms' mother signed a formal consent.

New York City

Influenza Among City Employees.—Nearly 2,000 of the city employees are suffering from influenza and pneumonia, it is announced. Out of 32,322 employees, 1,869 are off duty owing to sickness. Out of 10,000 policemen, 620 are off, and of the fire department's 6,000 men, 380 are sick.

Janeway Lecture.—The Mount Sinai Hospital invites physicians and their friends to attend the E. G. Janeway Lecture to be given at the Blumenthal Auditorium, March 26, by Prof. J. J. R. MacLeod of Toronto University, Canada. His subject will be "Experimental Work on Diabetes and Insulin."

"Face Specialists" Lose Suit.—A verdict of $25,000 was awarded by a jury in the supreme court, February 21, to Miss Florence Clover, according to report, in her suit against Dr. Oswald C. Stackhouse and the John Woodbury Company, Inc., charging that her face was disfigured as the result of treatment to reduce the length of her nose.

Case of Leprosy at Bellevue.—A case of leprosy was recorded at Bellevue Hospital, March 3, when Abraham Wiener, 50 years old, was transferred there from the Jefferson Davis Hospital. The patient was placed in the contagious ward. He came to New York about three weeks ago. This is the only case of leprosy in New York City, as far as known.

New Health Commissioner Named.—Mayor Hylan made official announcement of the appointment of Dr. Frank J. Monaghan to the post of health commissioner of the city of New York, to succeed Dr. Royal S. Copeland, who has become United States senator. Dr. Monaghan entered the department of health at the beginning of Mayor Hylan's first term and has been the deputy commissioner.

Epidemic Encephalitis in New York.—The total number of cases of epidemic (lethargic) encephalitis occurring in this city since January 1 is 370, and the number of deaths, 115. The largest number of weekly cases occurred during the weeks of February 24 and March 3, seventy-eight and sixty-eight, respectively. For the first six days of the week of March 10, there were reported thirty-eight cases, with eighteen deaths. It is believed that the outbreak has passed the peak and is on the decline.

Benefit Performance of "Pasteur."—Mr. Henry Miller gave a benefit performance of the play "Pasteur" by Sacha Guitry, for the New York Academy of Medicine Building Fund. It has been suggested that the proceeds be used for the maintenance of a memorial to Louis Pasteur in the proposed new building of the New York Academy of Medicine. This performance, which took place, March 14, was the first public presentation of the play in this country. The New York Academy of Medicine is conducting an intensive drive to raise the $250,000 fund for the site of its proposed new building, the funds for which are contingent on the raising of this amount for the site.

OHIO

Physician's License Restored.—The Ohio State Medical Board reports that the license of Dr. Henry Oliver Davis, Akron, which was revoked in 1915 following his conviction for selling narcotics illegally, was restored in January, 1918.

Physician Sentenced.—Dr. Addison D. Hobart, Toledo, reports state, was sentenced to serve three years in the Atlanta penitentiary by Judge Killits in the federal court, March 5, when he was found guilty of violating the Harrison Narcotic Law.

Noted Physical Chemist Dies.—Edward W. Morley, Ph.D., Sc.D., for thirty-seven years professor of chemistry at Western Reserve University, Cleveland, and at Cleveland Medical College for the period 1873-1888, died at his home in Hartford, Conn., February 24. Dr. Morley was a corresponding member of the British Association for the Advancement of Science, an honorary member of the Royal Institute of London and the Chemical Society of London, and has served as president of both the American Association for the Advancement of Science and the American Chemical Society.

PENNSYLVANIA

Personal.—For the first time in the history of Pennsylvania, it is said, a woman has been appointed a member of the governor's cabinet. Dr. Ellen C. Potter has been named welfare commissioner by Governor Pinchot.——Dr. William G. Turnbull, superintendent of the Cresson Free State Sanatorium for Tuberculosis since its opening, has been appointed deputy commissioner of health for Pennsylvania, to succeed

Dr. John D. McLean, Harrisburg, who resigned, March 1. ——Dr. Edward W. Bixby, Wilkes-Barre, has been appointed county medical director of Luzerne County, to succeed Dr. Charles H. Miner.——Dr. S. Leon Gans, chief of the division of venereal disease control, Harrisburg, has resigned, the resignation to take effect, April 1.——Dr. John F. McCullough, Pittsburgh, will read a paper on "Complete Examination in Diseases of the Upper Right Quadrant," before the semi-annual meeting of the Roentgen Ray Society of Central Pennsylvania, April 27, at Williamsport.

Philadelphia

Personal.—Dr. Richard H. Harte, formerly director of health and charities, was awarded the Distinguished Service Medal, March 7, by the War Department. Colonel Harte was medical director of the Pennsylvania Hospital's Base Unit No. 10, one of the earliest American hospitals in France.

Smallpox Closes School.—More than 5,000 residents of the territory bounded by Thirty-Seventh and Thirty-Ninth streets and Haverford and Fairmount avenues were under quarantine, March 8, after the discovery of one case of smallpox at 3828 Mount Vernon Street. Police lines were drawn around the restricted area at 3 o'clock, and fifty physicians in charge of Dr. A. A. Cairns of the deartment of health, began the work of inoculation. The Mantua Primary School, at Mount Vernon and Thirty-Eighth streets, was closed because of the quarantine. The district was the largest and most thickly populated of all that has been under quarantine in recent months, and the work of vaccination was necessarily slow, because of the large number of children in many of the families.

SOUTH CAROLINA

Personal.—Dr. Henry H. Workman, Woodruff, and Dr. Newton T. Clark, Spartanburg, were elected president and secretary, respectively, of the Spartanburg County Medical Society at the annual meeting.—— Dr. William M. Love, Chester, has been appointed to the board of health to succeed Dr. William R. Wallace.—— Dr. B. R. Brown, city physician and chairman of the board of health of Gaffney, with four other members of the board, resigned, February 28.

WASHINGTON

Health Exposition.—A health exposition will be conducted in Seattle, May 16-26, similar to the one recently staged in Portland. It will be conducted by the American Health Exposition organization, and will have the cooperation of the state and county medical societies. Moving pictures, lectures and health exhibits will be among the features on the program at Seattle.

WISCONSIN

Physician Sentenced.—It is reported that Dr. Henry T. Brogan, Milwaukee, convicted of fourth degree manslaughter following the death of a woman as a result of an obstetric operation, was sentenced to one year in the house of correction, February 27.

Personal.—Dr. Smiley Blanton of the University of Wisconsin Medical School, Madison, spoke on "Organic Changes in Dementia Praecox" before the Milwaukee Neuropsychiatric Society, February 23.——A party was tendered Dr. Gilbert Mueller on the occasion of his resignation as house physician at the Emergency Hospital, Milwaukee. Dr. Edward J. Craite, Rice Lake, has been appointed to succeed Dr. Mueller. ——Dr. John M. Conroy, formerly connected with the Nopeming Sanatorium, Nopeming, Minn., has been appointed superintendent of the Pureair Sanatorium at Bayfield, to succeed Dr. M. S. Hosmer.

WYOMING

Personal.—Dr. Robert W. Hale, Thermopolis, has been appointed a member of the new state board of health by Governor Ross.—Dr. Walter H. Hassed has leased the Lusk Hospital at Lusk. This institution was recently closed.

Northwestern Wyoming Medical Society.—At the annual meeting of the society held in Powell recently the following officers were elected for the ensuing year: president, Dr. Francis M. Lane, Cody; vice president, Dr. Neil D. Nelson, Thermopolis, and secretary-treasurer, Dr. Frank A. Mills, Powell. Dr. Will V. Gage, Worland, read a paper on "Asthma." The March meeting of the society at Thermopolis has been postponed until June, owing to unfavorable weather and roads.

CANADA

Harvey Club of Canada.—A piece of mahogany, obtained from the Harvey home built in Folkestone, England, in the sixteenth century, has been presented to the Harvey Club of Western University, London, Ont. The specimen will be made into a gavel for the use of the president of the club.

Canadian Medical Association.—The annual meeting of the Canadian Medical Association will be held in Montreal, June 12-14, under the presidency of Dr. David H. Arnot, London, Ont. The association has been investigating the feasibility of establishing a college of surgeons in Canada. A committee was appointed for this purpose at the last annual session at Winnipeg, June 20-23, 1922, and will report on the matter at the Montreal meeting.

GENERAL

Western Electro-Therapeutic Association.—The fifth annual meeting of the association will be held in Kansas City, Mo., April 19-20, under the presidency of Dr. Howard Plank of Chicago. Drs. F. H. Morse, Boston, and H. H. Bowing, Rochester, Minn., will be among the speakers.

Aid for Tuberculous Veterans.—The sum of $50,000 has been voted by the Knights of Columbus for the aid of tuberculous and otherwise disabled war veterans who are stranded in the Southwestern states, where they have gone in search of work and health. The money has been forwarded to national headquarters of the American Legion, who will administer the fund.

Award for Radium Research.—At a meeting of the American Roentgen Ray Society in Atlantic City, N. J., recently, it was announced that $1,000 would be awarded by the society for the best original research in the field of roentgen ray, radium or radioactivity. The competition will close July 1. Drs. George E. Pfahler, Philadelphia, Frederick H. Baetjer, Baltimore, and George W. Holmes, Boston, will be the judges.

American Congress on Internal Medicine.—The seventh annual clinic week of the American Congress on Internal Medicine will be held in Philadelphia, April 2-7, under the presidency of Dr. Sydney R. Miller of Baltimore. The opening session will be held in Mitchell Hall, College of Physicians Building, at 2 p. m., April 2. Dr. Thomas R. Neilson, president of the College of Physicians of Philadelphia, and Dr. William Pepper, dean of the University of Pennsylvania Medical School, will give addresses.

Recognition of National Examining Board.—The governor of the state of Texas has announced that the certificate of the National Board of Medical Examiners will in future be recognized. February 9, Governor Cox signed an act which will permit the Massachusetts Board of Registration in Medicine to accept the certificate of the national board in place of and as equivalent to its own professional examination in determining the qualifications of a candidate for registration. This act amends Chapter 112 of the General Laws of the Commonwealth, which has required the board of registration to give its own examination to each candidate for registration in medicine. This amendment becomes effective, May 9. The national board is now officially recognized by boards of registration in twenty-three states, and recognition in three other states is expected soon. In addition to the recognition by state boards, the certificate of the National Board of Medical Examiners is accepted as equivalent to the required professional examination of the U. S. Army, Navy and the Public Health Service, by the American College of Surgeons, and by the Mayo Foundation. Reciprocal relations have also been established with the Conjoint Examining Board of England and the Triple Qualification Board of Scotland.

FOREIGN

Netherlands' Contribution to Pasteur Monument.—The committee in the Netherlands has collected and presented to Professors Borrel and Weiss at Strasbourg the sum of 10,000 francs toward the monument to Louis Pasteur in the city in which he began his scientific career.

The Carthage Prize.—This biennial prize was founded in 1921, and has just been awarded for the first time. The recipient is Dr. Nicolle, noted for his researches at Tunis on the transmission of typhus and on trachoma, Malta fever, leishmaniasis and other tropical diseases. He first proved transmission of typhus by lice.

Organization of Pediatric Society in Belgium.—In January, the Société belge de pédiatrie was organized. It is proposed to hold five meetings a year. Professor Péchère, 30 rue des

Drapiers, Brussels, is the secretary. He is to preside at the annual meeting of pediatricians of French-speaking countries, which is to be held at Brussels in September of the current year.

Bust of Pasteur for League of Nations.—The Pasteur Institute of Paris and the descendants of Pasteur will present to the Council of the League of Nations a bust of Pasteur, in gratitude for the appointment of a member of the Council and a delegation from the health committee of the League of Nations to attend the centenary of Louis Pasteur at Strasbourg.

Approaching Congresses Abroad.—April will see the International Congress on Thalassotherapy (the sea), at Venice, April 9 to 12, with excursions to Italian watering places and to the Italian Congress on Hydrology, which meets at Palermo, April 15, Professor Ceresole, Ospedale civile, Venice, is the secretary of the international gathering.—— At Rome, April 5 to 7, the Italian Società freniatrica holds its sixteenth annual meeting. The secretary is Prof. F. Bonfiglio, via del Mascherino 72, Rome.

French Ophthalmologic Congress.—The thirty-sixth congress of the French Société d'ophthalmologie is to be held this year at Strasbourg, June 11 and the following days. The discussion on "Treatment by Subconjunctival Injections" is to be opened by Dr. Van Lint of Brussels. The French railways allow a reduction of 50 per cent. to members of the congress, and various excursions have been planned. For further details, apply to Dr. R. Onfray, 6 ave. de la Motte-Picquet, Paris.

Bicentennial of Christopher Wren.—The bicentenary of the death of Sir Christopher Wren was observed in London, February 25-March 3. The ceremonies were organized by the Sir Christopher Wren Bicentenary Grand Committee, consisting of representatives of thirty-eight scientific and municipal bodies. Sir Christopher Wren was president of the Royal Society from 1680 to 1682, and was the designer of the Royal College of Physicians. A memorial volume of essays on various aspects of his life and work was published, the profits being devoted to the preservation fund of St. Paul's Cathedral, of which Sir Christopher was the builder.

Biologic Neuropsychiatric Reunions.—Under this name, the physicians of the Asile Sainte-Anne at Paris are holding quarterly conferences to demonstrate the new biologic methods of research in nervous and mental diseases. At the January meeting, Claude gave tests of the polygraph, which records the solar reflexes and the oculocardiac reflex. Garrelon presented evidence that dogs in which hypervagotony is induced are more susceptible to the action of toxins. Aubel's data confirmed that functional tests of the liver demonstrate insufficiency of this organ in melancholia. A number of neurologists from home and abroad attended this reunion. The second is to be held early in April.

Personal.—Dr. Thomas Gwynne Maitland, Birmingham, England, delivered a lecture before the members of the staff of Troy Hospital, Troy, N. Y., January 17. Dr. Maitland was director of the typhus colony in Serbia during the World War.——Sir Arthur Keith delivered his six Hunterian lectures on "Man's Posture: Its Evolution and Disorders," in the theater of the Royal College of Surgeons, London, March 5-16.——Dr. Stockis, professor in the University of Liége, has been elected president of the Belgian Federation of Scientific Societies.——A course of three lectures on "Recent Work on Inborn Errors of Metabolism" was given by Sir Archibald E. Garrod at the University of London, February 28, March 7 and 14.——The honorary medical degrees conferred by the Paris University on Dr. W. W. Keen of Philadelphia and on Golgi at Pavia are to be presented at the convocation, Nov. 24, 1923.——Professor Pittaluga of Madrid has been lecturing at the Paris medical school on "Diseases of the Blood" and "Malaria." He was banqueted by the dean of the medical school, and he also spoke in Vaquez's service. Professor Recasens of Madrid will lecture at Paris in April.——The University of Bordeaux has conferred an honorary degree on Prof. Ramón y Cajal. It is the first time a degree of the kind has been given by this university outside of France.—— Drs. A. Wimmer and K. Krabbe of Copenhagen have been elected corresponding members of the Société de neurologie at Paris. Dr. A. Bang, also of Copenhagen, has been elected a member of the French Cancer Research Association.

Deaths in Other Countries

Dr. **J. J. Cox** of Manchester, England, former president of the Royal Society of Medicine of Edinburgh, the Manchester Medical Society and the Manchester Clinical and Pathological Society; consulting physician to the Manchester Northern Hospital for Women and Children; in Scotland, January 17, aged 66.——Dr. **J. A. Raubenheimer,** member of the South African parliament; at Oudtshoorn.——Capt. **Wesley Barritt,** dental surgeon of Harley Street, aged 52.——Dr. **Constance Long** of London, at the home of Dr. Beatrice Hinkle, New York, U. S., February 16, from pneumonia.——Prof. **Christian Saugman,** chief of the Vejlefjord Sanatorium in Denmark and an authority on treatment of pulmonary tuberculosis. He had recently accepted the invitation of the Royal Medical Society to lecture in England on "Thoracoplastic Operations in Pulmonary Tuberculosis."——Dr. **G. J. Witkowski** of Paris, a practitioner and medical historian, author of "The Nude in the Theater from Antiquity," "The Physician in the Drama," "Medical Anecdotes" and "Human Generation," now in its ninth edition.——Dr. **D. Baiardi,** professor of surgical pathology at Turin.——Dr. **Theodore Zaymis,** professor of surgery at the University of Athens.——Dr. **Rafael Pastor Reig,** professor of surgery at the University of Valencia, one of the editors of *Policlinica.*

CORRECTION

Experimental Hydronephrosis.—In the paper by Dr. Frank Hinman on this subject in THE JOURNAL, Feb. 3, 1923, page 315, an error has been made in the photograph labeled Fig. 2, the wrong photograph having been sent by the author. A correction appears in the author's reprints.

Government Services

Aviation Examining Unit Authorized

Pursuant to instructions of the Secretary of War, the organization of Aviation Physical Examining Unit No. 16 (a Pennsylvania state unit), organized reserves, has been authorized.

Physical Examinations for Training Camps

In the Army Appropriation bill, provision is made for the expenditure of $6,400,000 for civilian military training camps in the summer of 1923. The War Department is consummating plans for the summer camp activities throughout the country, by which it contemplates training 30,000 men this year. The purpose of the summer camps is to build up a civilian reserve army that could be called on in case of national emergency. Before an applicant can be enrolled he must undergo a preliminary medical examination and meet certain minimum physical requirements. Physicians who make preliminary examinations are asked to be accurate in order to save the government expense, as failure to meet the requirements results in rejection at the army camps.

Community Show at Army School

The Army Medical Field School held a community show at Carlisle Barracks, Pa., March 5-10, at which each department of the school presented exhibits. The technical library was thrown open, showing hundreds of volumes on medical and military tactics. The museum containing a valuable collection of miniature sanitary devices and appliances that were used by the American army in France proved an interesting exhibit.

Change in Triple Typhoid Vaccine

The following changes have been made in the manufacture and issue of triple typhoid vaccine at the Army Medical School:

1. The content of paratyphoid A and paratyphoid B bacilli has been reduced from 750 million each to 500 million each per cubic centimeter. The present composition of the vaccine is, therefore, 1,000 million typhoid bacilli, 500 million paratyphoid A bacilli and 500 million paratyphoid B bacilli per cubic centimeter, a total of 2,000 million per cubic centimeter.
2. The time of expiration has been extended from four to six months.
3. The vaccine will be issued in special rubber stoppered bottles as well as in ampuls.

Commercial firms are allowed a limit of twelve months on their vaccines, but the present time of expiration is four months in the United States and six months outside the country. The strength of the vaccine has been reduced in order to meet existing indications more closely.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 19, 1923.

Reforms in the Public Mental Hospitals

Considerable public attention has been directed to the administration of mental hospitals, which used to be termed lunatic asylums, by a severe attack on their administration by a physician (Dr. Lomax) who was a medical officer in one for a short period. He alleged gross cruelty and neglect of patients, which led the government to appoint a commission of inquiry; but he declined to give evidence before the commission, as he was not satisfied with its constitution. The commission made a report in which his graver charges were discredited, but it was admitted that he had called attention to certain matters which required reform and a number of recommendations were made. The following reforms have been recommended by the board of control (the official body which controls all administration): In classification, some account will be taken of the home conditions and surroundings from which the patient comes. In the appointment of superintendents, preference will be given to those who have obtained a diploma in psychologic medicine and who have served as house surgeon or house physician in a general hospital. The number of assistant medical officers will be increased. Every endeavor will be made to provide patients with occupations and, as far as possible, to arouse their interest. The question of authorizing payment to patients is under consideration. Visiting committees should consider the desirability of providing letter boxes in which patients can post their letters, and in every ward notice should be posted informing patients of their right to forward letters unopened to the authorities. The organization of after-care work needs to be strengthened and extended, with a view to facilitating the discharge of patients who, though not fully recovered, could dispense with institutional care if suitable conditions were provided. Notices should be placed in the waiting rooms of public mental hospitals to inform friends and relatives of patients of the provision of the lunacy act empowering them to apply for the discharge of a patient. Visiting committees should be strengthened by the cooperation of persons who have special qualifications and time to devote to the work. The provision of facilities for the early treatment of incipient mental disorders without certification is recommended as of great value.

Insurance Medical Service

Much dissatisfaction with the insurance medical service is being expressed by the representatives of friendly societies and echoed in a section of the press. Many complaints are made of grudging and perfunctory attendance, such as the writing of prescriptions without even looking at patients. On the other hand, some patients state that they have received every possible care. The fact that the physician is not paid for each attendance but receives an insurance fee, whether the patient is ill or well, is largely the basis of the trouble. The stimulation of the fee paid or payable for each attendance is gone. Moreover, as the panel patient has to pay nothing additional, no matter how often he seeks advice, there is a strong tendency for the physician's time to be wasted in attendance on patients with trivial or imaginary complaints who would never trouble about them if they had to pay. Such persons deserve only perfunctory treatment, but this very practice tends to become a habit, especially in times of rush, when the time required for patients who are really ill is wasted by those who are not. Here have the weak point of the insurance acts. The less the time devoted to a panel patient, the better the rate of pay, for the payment remains constant. The more conscientious the physician, the worse the rate of pay. As a remedy, paying according to attendance is suggested, but there is an equally crucial objection to this. In private practice, it is to the interest of the patient to see that the physician does not run up a bill larger than is necessary. Under the insurance system, the patient has no interest whatever in the amount of the bill, and indeed, as stated, often employs the physician unnecessarily. The funds would be completely at the mercy of any physician who desired to help himself.

The time is approaching when the present contraet with the panel physicians expires. Apparently, in anticipation of this, the British Medical Association has called a conference of its insurance acts committee, with representatives of the friendly societies. In an opening address, Dr. H. B. Brackenbury, chairman of the insurance acts committee, who presided, said that this was the first plenary conference of those who worked under the insurance act. The service was now seen to be far too complicated, and it was still very incomplete. There were imperfections in those who operated under the acts and imperfections in the insured persons, who in some cases avoided the act or were indifferent to it, or failed to inform themselves as to its provisions and their duties under it. Yet the work improved, manifestly. Physicians as a whole no longer were antagonistic. Disciplinary action taken in certain cases had its effect on those who were less conscientious and zealous than they should be. The regulations had been in some respects simplified, and additional benefits were beginning to mature. The first subject discussed was "title to benefit." When an insured person has chosen a physician and been accepted by him, there is no difficulty. But a difficulty may arise when one who has not gone through this formality is taken ill. In some cases, physicians charge such persons for attendance as they would private patients. The most important subject discussed was with regard to the efficiency of service rendered. A representative of the friendly societies complained of insufficient waiting room accommodation, resulting in overcrowding. In every insurance area, physicians should be available at any hour. If a particular physician was not available, it ought to be the responsibility of his servant to get into telephonic communication with another physician about an urgent case; it ought not to be left to the friends to go around to one physician after another in the hope of getting attendance.

Another complaint was that patients went on the lists of popular physicians believing that they would get personal attention, but when taken ill they never saw any one but an assistant. Physicians should not employ assistants. This objection was answered by pointing out that, in the interests of patients, newly qualified physicians required some training as assistants before they practiced on their own account. Some physicians had two doors, one for private, the other for panel patients. That should be abolished. On the part of the association, it was pointed out that, while no doubt there were "black sheep in every flock," the number of complaints in proportion to 13,500,000 insured persons was very small. In a discussion of the supply of drugs and appliances, a representative of the friendly societies remarked, quite truly, that a great deal had been heard about excessive prescribing, but what was really wanted was a campaign against excessive drugging on the part of the insured. Medicine had become a fetish. The chairman opened a discussion on the extension of services, which he divided into (1) provision of diagnostic facilities and (2) institutional or specialist treatment. The former was much less expensive and more easy than the latter. There might soon be an extension of arrangements

for certain laboratory investigations and the use of the roentgen rays for examination of fractures and other conditions. Some approved societies have already supplied such extension, but the problem is to put it on a national basis. Although considerable antagonism, rising sometimes to acrimony, has existed between the representatives of the friendly societies and those of the panel physicians, the conference was marked by agreement rather than difference and was quite amicable.

Regulations with Regard to Condensed Milk

The ministry of health have made new regulations as to the labeling and composition of condensed milk. Every can must bear a label specifying its contents (for example, full cream or unsweetened), and stating the equivalent volume of milk (or skimmed milk) contained in the can. Every can of condensed skim milk must be labeled "unfit for babies." The name and address of the manufacturer must appear on the label. Any instructions as to dilution must be quantitatively accurate. Condensed milk must contain not less than the following percentages of milk fat and solids:

	Milk Fat, Per Cent.	All Milk Solids, Per Cent.
Full cream, unsweetened	9	31
Full cream, sweetened	9	31
Skimmed, unsweetened	..	20
Skimmed, sweetened	..	26

The regulations will come into force, August 1, and will apply to all milk intended for sale for human consumption, whether produced in this country or imported.

PARIS

(From Our Regular Correspondent)

Feb. 16, 1923.

The Centenary of Agrégés in Medicine

Instruction in our medical schools is given by *"professeurs,"* a title which, when strictly used, always signifies incumbency of a definitely established professorial chair; or by assistant professors, designated as *"agrégés,"* who do not occupy such chairs. The system of *agrégés* in medical schools was established just one hundred years ago, by a royal decree dated Feb. 2, 1823. Since that time, the system has undergone many transformations. The principal change has tended to transform the *agrégé* system, with its essentially temporary character, into one of a more permanent nature. It may be mentioned that *agrégés* are appointed for a period of nine years. If, during this period, the *agrégé* did not secure a chair and thus become a professor, his career as an instructor terminated and he became an *"agrégé libre,"* having then no further connection with the faculty. The situation of an *agrégé* was, therefore, quite precarious. Attempts were made to remedy this by a series of measures. Thus, a rank somewhat intermediate between the professor and the *agrégé* was created, to which was assigned the title of *"professeur adjoint"* (adjunct or associate professor). In case there was no professorship vacant, and while they were waiting for a vacancy to occur, a limited number of *agrégés* could be appointed adjunct professors and thus continue on the faculty. Another step toward giving the *agrégé* system a more permanent character was taken with the passage of the decree of March 4, 1914, according to the provisions of which the *agrégés*, on completion of the term of nine years, and also the *"agrégés libres,"* may be *pérennisé;* that is, their incumbency may be regarded as permanent, until the age of retirement is reached, which is after thirty years of service. Then, the decree of Jan. 4, 1921, provided that *"agrégés pérennisés"* (*agrégés* whose incumbency has been declared permanent) may be appointed *"professeurs titulaires"* (professors without a chair). Finally, according to the decree of May 28, 1921, *agrégés* may also be appointed *"professeurs honoraires."* In accordance with these decrees, many *agrégés* in the universities of the provinces have been declared permanent incumbents of their posts, which is a fitting recompense for their labors and years of teaching.

In connection with the celebration of the centenary of the establishment of the *agrégé* system, Dr. Mauclaire, who is himself an *agrégé* of the Faculté de médecine of Paris, gives, in the *Gazette des hôpitaux*, the complete list of *agrégés* appointed for Paris during the last hundred years. This list comprises a total of 406 *agrégés*, 150 of whom were later appointed professors of the Faculté de médecine of Paris. Ten others were appointed professors on the provincial faculties, and five in other educational institutions.

The Necessity of Supervision of Commercial Analytic Laboratories

In view of the continually growing number of private laboratories in which are made not only chemical analyses but also bacteriologic examinations and very important biologic tests, the necessity of some system of supervision, to which attention was directed about a year ago, by Dr. Paul Salmon (THE JOURNAL, Jan. 21, 1922, p. 207), is becoming more and more manifest. The current number of the *Presse médicale* reports numerous examples of analyses impaired by errors or in which discordant results were given. A physician took a specimen of urine and divided it into three parts, which he left with as many different pharmacists. The first reported a correct analysis: 3.4 gm. of albumin and 42 gm. of sugar. The second found 5 gm. of albumin and no sugar; the third, 30 gm. of sugar and no albumin. While this was serious enough, the following case is more grave: A girl, aged 17, contracted a sore throat. Her father, a physician, took a smear and sent it to a well known pharmacist, who reported: "numerous streptococci; no bacilli." The father was not convinced, and sent a new smear to the pharmacist every day; and every day he received the same report. One evening he found his daughter so ill that he became alarmed and asked the pharmacist whether he was quite certain about his report, and the latter replied that he had not the slightest doubt as to its correctness, and advised the injection of antistreptococcus serum. The father then went to a confrère residing in the neighborhood. This confrère was a hospital physician who had been for a long time director of a contagious disease ward. He had scarcely entered the patient's room when, without even examining the throat, he insisted on the necessity of giving the patient immediately an injection of antidiphtheric serum. And, indeed, the cultures that were prepared in a laboratory of the Faculté de médecine showed characteristic diphtheria bacilli. In another case, a physician, basing his judgment on the findings of a pharmacist, who, without adequate training, was playing the rôle of a bacteriologist, thought he was dealing with a streptococcal pneumonia and was preparing to inject antistreptococcus serum when it was discovered that the supposed streptococci were nothing more than spherical masses of an old fuchsin solution in water colored with anilin.

In view of such errors, the consequences of which may be extremely grave, some form of supervision seems essential. The writer of the article in the *Presse médicale* finds the present state of affairs unacceptable. Whereas no one can practice medicine, and no one can sell drugs or medicinal herbs, unless he holds a diploma, it seems to be regarded as of no importance who has the legal right to perform chemical, biologic and bacteriologic tests. One would suppose it was more difficult to make an analysis than to sell a bottle of "patent medicine," and yet he who dispenses the products that the wholesalers send him is provided with a very significant diploma, while the one who makes the analysis on which the life of the patient depends may be absolutely incompetent.

Before a person should be allowed to make medical analyses, he should pass a series of tests and should then be furnished with a diploma. Furthermore, medical analytic laboratories should be placed under the supervision of a joint commission composed of professors chosen from the Facultés de médecine and the Facultés de pharmacie.

Reminiscences Connected with Pasteur

Dr. J. A. Doléris, honorary obstetrician to the hospitals of Paris, publishes in the review *Gynécologie* a series of reminiscences connected with the life of Pasteur. Doléris was the first medical student to be admitted to Pasteur's modest laboratory and to be initiated, along with his many brilliant collaborators, all of them chemists, by Pasteur himself in the mysteries of micro-organisms. He was the author of the first doctorate thesis that came out of this bacteriologic laboratory and was defended before the Faculté de médecine of Paris. A few weeks after Pasteur presented to the Academy of Medicine his communication on the probable cause of puerperal fever, Doléris, who was then an intern at the Maternité, was performing a necropsy on a patient who had died from a puerperal infection; he then, for the first time, found himself brought into direct contact with Pasteur, who had been invited to be present and to collect certain specimens for study. What impressed Doléris most on this occasion was the pained expression that crossed the face of the eminent scientist, a laboratory man, who up to that time had studied puerperal infection only in animals, as he contemplated this human body as it lay on the bare slab in the low, dismal dissecting room. Pasteur could not help uttering words of compassion for this poor creature who, owing to an implacable disease, had sacrificed her life in the performance of her maternal duty. *"La pauvre femme! La malheureuse!"* he exclaimed, from time to time, as Doléris performed the necropsy before him and exposed the organs one by one, while Roux, who accompanied him, collected specimens of the pathologic fluids in the veins, the peritoneum and the fallopian tubes. The thesis of Doléris on the etiology of puerperal fever was received rather coldly by his critics. At the mention of bouillon culture mediums, Professor Depaul exclaimed scornfully: "What has all this cookery to do with puerperal fever?"

Let me call attention also to these characteristic lines of a letter that Pasteur wrote to Doléris a short time after the latter passed his doctorate: "You are about to enter, or, I may say, you have entered, the great field of practice. Seek to ascertain—but always exercising prudence and sound judgment—what part must be assigned to micro-organisms."

BERLIN

(From Our Regular Correspondent)

Feb. 10, 1923.

The Biologic and the Social Effects of Alcoholism

Dresel, professor of social hygiene in the University of Heidelberg, publishes in the *Zeitschrift für ärztlich-soziales Versorgungswesen* a very interesting study on the biologic and social effects of alcoholism, from which I will cite passages. According to experiments carried out by several scientific investigators, the narcotic effect of alcohol depends on its degree of dilution. The speed with which alcohol is absorbed is reduced if taken along with food, and the body that is habituated to alcohol absorbs it more rapidly than one that is not habituated. Whereas other narcotics produce a deeper sleep, alcohol has the opposite effect; sleep is, however, prolonged by alcohol. The sensation of hunger can be deadened by alcohol, since small quantities of alcohol stimulate the activity of the stomach. The sensation of thirst, however, seems to be increased by alcohol, for otherwise it would be difficult to comprehend how habitual drinkers can consume such large quantities of alcoholic beverages; very few persons would be able to drink an equal quantity of water. The abolition of inhibitions is effected only by small doses of alcohol. Small doses also facilitate the development of motor power and stimulate the will. Larger doses, however, impair the coordination of movements, and, according to the investigations of Ach, the psychologist of Königsberg, lessen the power of comprehension in reading experiments; also the power of observation is reduced. The capacity to associate sounds is increased, which fact will explain why "poetic effusions" are so often produced under the effect of alcohol. The ability to add is often reduced, and the incoherence or flightiness of thought in habitual drinkers is well known. The power to perform muscular work is reduced by alcohol, although the subjects on whom the experiments were carried out stated that it was perceptibly easier to perform the work required when alcohol had been ingested.

The use of alcohol as a stimulant in sport activities is, therefore, contraindicated, on account of its weakening and other injurious effects. The feeling of increased warmth may also be regarded as a subjective deception. Large doses of alcohol cause a fall in the body temperature. The use of alcohol as a food is irrational, since the cost of a given caloric value is much higher in this form than from unextracted foodstuffs. According to the investigations of Professor von Gruber of Munich, a considerable waste of albumin occurs in the manufacture of beer. There is also considerable economic loss in the process of obtaining brandy from potatoes. The effect that abuse of alcohol exerts on disease and mortality is, in the opinion of Dresel (which accords with that of other investigators), difficult to estimate. So far, no specific injuries to the tissues or organs have been established with certainty as due to alcoholism, although it appears that many organic diseases occur more frequently in habitual drinkers than in persons who are temperate. The effects on animals that have suffered damages from experimental doses of alcohol cannot be applied without question to man. Even the frequent occurrence of cirrhosis of the liver does not prove an etiologic connection with alcoholism, for the bodies on which necropsies are performed do not furnish conclusive evidence as to the conditions that obtain in all dead bodies, much less as to conditions in the living.

One thing, however, appears certain, and that is that in habitual drinkers the small blood vessels undergo certain changes. Kräpelin, the psychiatrist, of Munich, found among his patients with arteriosclerotic brain symptoms 71.5 per cent. men, and of these, 47 per cent. were habitual drinkers. Many cases of mental disease have a history of immoderate indulgence in alcohol. During the war, delirium tremens disappeared almost entirely. The results of conception during alcoholic intoxication have not, as yet, been definitely established. It is probable, however, that in chronic alcoholics the spermatozoa are directly injured. But whether constitutional inferiority, which, it is asserted, occurs frequently in the offspring of habitual drinkers, is due to direct injury to the germ cells of the parents through alcohol, or whether it is only the result of the hereditary transmission of a psychopathic constitution, which is relatively frequent in habitual drinkers, has not been decided as yet.

The investigation of causes with respect to disease and death in the callings most closely associated with the manufacture and distribution of alcohol (saloon keepers, waiters and brewers) encounters the greatest difficulties, as the high morbidity and mortality in these classes may be explained on other grounds. It is exceedingly difficult to differentiate injuries due directly to alcohol from other injuries, and, in Dresel's opinion, it is, to a certain extent, an impracticable differentiation; for it must be remembered that alcoholism

seldom appears as an isolated evil, but is almost always associated from the start with some other social evil. Dresel regards this as the chief difficulty in combating injuries due to alcohol. He thinks that prohibition of alcohol will only partially solve the problem of relieving the public or the state from persons who are now alcoholics or have suffered injuries through alcohol; for it is certain that many of those who now apparently suffer shipwreck on account of alcohol would follow a downward course as the result of some other evil quite disconnected from alcohol. This applies also to the high criminality asserted to exist among habitual drinkers, as set forth by the Berlin investigator Baer. Dresel states that the question has now been raised why all heavy drinkers do not develop criminal tendencies. Dresel holds that alcoholism alone does not produce criminality, but that persons with psychopathic tendencies are inclined to combine alcoholism with criminality. The alcohol problem is so closely interwoven with the whole life of the people that researches on the existing social conditions among drinkers and in drinkers' families are more likely to shed light on the situation than studies on isolated biologic questions. The greatest damage to society is not caused by the degradation of the heavy drinkers themselves and by the disruption of their families (for their number is small compared with the total population), but lies rather in the spread of the habitual use of alcoholic beverages by the masses of the people.

Outbreak of Meat Poisoning

In the bath resort of Freienwalde, near Berlin, there occurred an outbreak of meat poisoning that affected several hundred persons. The symptoms had developed after eating horse meat, and several of the cases resulted fatally. It was ascertained that all the meat that had caused the poisoning had been purchased in the same shop. Necropsies on the victims revealed the presence of paratyphoid bacilli. It was discovered that the butcher had slaughtered and marketed six horses, three of which had harbored paratyphoid bacilli. Unfortunately, the official meat inspector had failed to discover the existence of the infection, and therefore suit has been brought against him for culpable negligence.

Personal

Professor Straub of Freiburg has been called to Munich to occupy the chair of pharmacology as successor to Professor von Tappeiner, who is to retire, April 1, on account of his advanced age.

Marriages

WALLACE WILLIAM HOLLEY, Warren, Minn., to Miss Pearle Marguerite Palmer of Los Angeles, January 9.

FRANK DALLAM WORTHINGTON, Charlotte, N. C., to Miss Alice Hunt Owings of Baltimore, February 28.

WARREN T. MAYFIELD, JR., Norman, Okla., to Miss Dolores Burrell of Santa Ana, Calif., in January.

CHARLES F. DAVIDSON to Mrs. Barbara Frick Chamberlaine, both of Easton, Md., February 24.

AVONIA EADES KISER, Paris, Ky., to Miss Maude Ussery of Richmond, Ind., recently.

MORRIS C. MARCUS to Miss Evelyn Neuman, both of Chicago, February 25.

CARL COHEN, Atlanta, Ill., to Miss Della L. Sporn of Chicago, February 11.

RALPH J. LEVY, New York, to Miss Marion Saul of Brooklyn, February 21.

HENRY S. PALMER, Newark, N. J., to Miss Johnson of Orange, recently.

JOHN KERCHER to Mrs. Clara Renker, both of Chicago, March 17.

Deaths

George Frank Lydston ✠ Chicago; Bellevue Hospital Medical College, New York, 1879; died in California of pneumonia, March 14. Dr. Lydston was born at Tulumne, Calif., in 1858. After his graduation he became intern at the Charity Hospital, New York, and later, resident surgeon of the New York State Immigrant Hospital. He was lecturer on genito-urinary diseases in 1882 and later professor of genito-urinary surgery and venereal diseases in the College of Physicians and Surgeons, Chicago. He was author of numerous books of both scientific and literary character, including a "Textbook on Genito-Urinary and Venereal Diseases," on the "Surgical Diseases of the Genito-Urinary Tract," and on "Impotence and Gland Transplantation." Most of his recent contributions to medical literature were devoted to the possibilities of securing rejuvenation by transplantation of glands. Among his contributions to general literature were a social text on diseases of society, a play "The Blood of the Fathers," and several novels, such as: "Over the Hookah," "Poker Jim," and "Trusty 515." Dr. Lydston was a man of aggressive personality and a writer of ability, with keen and satirical humor.

Asa Wilder Daniels, Pomona, Calif.; Medical College of Ohio, Cincinnati, 1867; founder of the Southern Minnesota Medical Society; Civil War veteran; member of the state board of health; for more than half a century a practitioner in Minnesota; served in the Indian outbreak of 1862; aged 94; died, February 27, of acute bronchitis.

Charles Columbus Simmons, Bunker, Mo.; Jefferson Medical College of Philadelphia, 1894; member of the Missouri State Medical Association; served in the M. C., U. S. Army, during the World War, with the rank of captain; aged 53; died, February 21, at St. Luke's Hospital, Kansas City, following a long illness.

Carroll Kendrick, Kendrick, Miss.; University of Louisville Medical Department, Louisville, Ky., 1873; member of the Kentucky State Medical Association; member and at one time president of the state board of health; for thirty years a member of the state legislature; aged 70; died, February 17, of heart disease.

William M. Leszynsky ✠ New York; Medical Department of the University of the City of New York, New York, 1878; member of the American Neurological Association and the New York Neurological Society; on the staffs of the Harlem, People's and Lebanon hospitals; aged 66; died, March 3, of pneumonia.

Charles Williamson Perkins, Chester, Pa.; Hahnemann Medical College of Philadelphia, 1870; practitioner in Chester for nearly half a century; former president of the city board of health; on the staff of the Crozer Hospital; aged 74; died, February 24, at Hot Springs, Ark., of diabetes mellitus.

Frederick Schauffler Osterheld, Ovid, Mich.; Detroit College of Medicine and Surgery, Detroit, 1919; member of the Michigan State Medical Society; served during the World War; aged 34; was killed, February 22, when the automobile in which he was riding was struck by a train.

William Franklin Faison ✠ Jersey City, N. J.; University of Virginia Department of Medicine, Charlottesville, 1888; on the staffs of Christ, Jersey City and St. Francis' hospitals; founder and president of the Fairmount Surgical Sanatorium; aged 57; died, February 24, of pneumonia.

George Washington Westermeier, Cherry, Ill.; Medical Department of Washington University, St. Louis, 1908; member of the Illinois State Medical Society; served in the M. C., U. S. Army, during the World War; aged 39; died, February 28, of pneumonia.

Charles H. Willson, Piketon, Ohio; Medical College of Ohio, Cincinnati, 1878; member of the Ohio State Medical Association; aged 70; was killed, February 25, when the automobile in which he was driving was struck by a train.

James A. Waterman ✠ Jefferson City, Mo.; Beaumont Hospital Medical College, St. Louis, 1887; physician to the Missouri State Penitentiary Hospital; aged 60; died, March 2, at St. Mary's Hospital, of abscess of the stomach.

Enos Canfield, Van Etten, N. Y.; Eclectic Medical College of the City of New York, New York, 1881; practitioner of Van Etten for more than half a century; aged 88; died, February 22, of heart disease.

James H. Fonger, Gary, S. D.; Minneapolis College of Physicians and Surgeons, Minneapolis, 1900; aged 48; died, January 28, at the John Swenson Memorial Hospital, Canby, Minn., of acute alcoholism.

Roy Granbery, New York; University of Louisville Medical Department, Louisville, Ky., 1901; passed assistant surgeon, U. S. Public Health Service; aged 42; died, February 27, of bronchopneumonia.

Wilson Charles Dingman ⊕ Poughkeepsie, N. Y.; Medico-Chirurgical College of Philadelphia, 1906; chief surgeon to the Mansion Square General Hospital; aged 50; died, February 27, of pneumonia.

Frank C. Simpson, Louisville, Ky.; University of Louisville Medical Department, Louisville, 1880; aged 65; died, February 25, at the Norton Memorial Infirmary, of pneumonia, following an operation.

Mary Agnes Dangel, San Francisco; University of Michigan Medical School, Ann Arbor, 1897; aged 56; died, February 25, at St. Luke's Hospital, of acute dilatation of the heart and myocarditis.

George W. Koeppel, Milwaukee; Milwaukee Medical College, 1901; formerly on the staffs of the Milwaukee County and Emergency hospitals; aged 44; died, February 18, of bronchopneumonia.

Howard Bell, Delhi, N. Y.; Medical Department of the University of the City of New York, New York, 1884; aged 68; died, February 17, from a bullet wound, presumably self-inflicted.

William D. Crocker, Warsaw, N. C.; Louisville Medical College, Louisville, Ky., 1887; member of the Medical Society of the State of North Carolina; aged 58; died, February 24, of influenza.

Enoch Knabb, Springfield, Mo.; Keokuk Medical College, Keokuk, Iowa, 1895; member of the Missouri State Medical Association; aged 55; died, February 19, of cerebral hemorrhage.

Arthur Windes Condict, Dover, N. J.; University of Michigan Medical School, Ann Arbor, 1882; member of the Medical Society of New Jersey; aged 63; died suddenly, February 16.

Charles Edward Dampier ⊕ Crookston, Minn.; University of Michigan Medical School, Ann Arbor, 1878; aged 68; died, February 20, at the Bethesda Hospital, of pneumonia.

Thirza La Vence Gregory, Englewood, N. J.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1892; aged 60; died, February 19.

James Edward Peltier, Newaygo, Mich.; Michigan College of Medicine and Surgery, Detroit, 1897; member of the Michigan State Medical Society; aged 59; died, January 8.

Joseph Daniel Daly, Brooklyn; Illinois Medical College, Chicago, 1899; on the staff of the Brooklyn Home for Consumptives; aged 46; died, February 26, of pneumonia.

Andrew Joseph McCusker, Glenwood City, Wis.; Detroit College of Medicine and Surgery, Detroit, 1918; aged 31; died, February 2, of pneumonia, following influenza.

Elmer Ellsworth Reed, Kansas City, Mo.; College of Homeopathic Medicine and Surgery of the Kansas City (Mo.) University, 1897; aged 56; died, February 17.

Walter de La Montanye Hill, Everett, Pa.; Jefferson Medical College of Philadelphia, 1900; died, February 9, at the Allegany Hospital, Cumberland, Md., of pneumonia.

Howard L. Garner, Rhinelander, Wis.; Milwaukee Medical College, 1901; served in the M. C., U. S. Army, during the World War; aged 44; died recently, of pneumonia.

J. Ambrose Armes, Leitchfield, Ky.; Louisville Medical College, Louisville, 1896; member of the Kentucky State Medical Association; aged 52; died recently, of carcinoma.

Charles Lamb Clark, St. Paul; Medical Department of Columbia College, New York, 1878; formerly deputy coroner; aged 66; died, February 16, of bronchopneumonia.

Elias V. B. Kendig, Hayesville, Ohio; Medical Department of the University of the City of New York, 1864; Civil War veteran; aged 84; died, February 21, of senility.

Emory W. Bruner, Jeffersonville, Ind.; Miami Medical College, Cincinnati, 1867; Civil War veteran; aged 81; died, February 27, of chronic nephritis and uremia.

Nelson Peck, Clarksburg, W. Va.; University of Maryland School of Medicine, Baltimore, 1886; aged 74; died, February 16.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

WHAT TO DO FOR A HIGH TEMPERATURE

Helpful Suggestions Sent to the Malingering Maid of Michigan

Elsewhere in this issue appears a report of a case of malingering that has been given much publicity in the daily press for the past few weeks. A young woman of Escanaba, Mich., was reported as having a temperature that, from the newspaper reports, ranged all the way from 111 F. to the limit of a clinical thermometer. Investigation showed that the patient "faked" the temperature by the stealthy use of a small hot-water bottle.

During the time that this case was a nine days' wonder, the patient's family received many suggestions. Most of these came by letter, some by telegraph. The family very courteously turned over to THE JOURNAL'S representative some of the would-be-helpful messages that had been received. The following brief extracts from this mass of correspondence may prove of interest:

From Oakland, N. J., came the suggestion that the patient be given "as much ice cream (vanilla or other mild flavor) as she will swallow all day long and at night, too. It may help her a lot."

The Rose Salatorium Co., Rome City, Ind., urged the patient to take the "Vitamin Salt Food," "the salt that builds you up" ($1.00 per pound) and to purchase (price $1.50) the book "What to Eat and How to Prepare It." The latter, it seems, is invaluable; after getting it "you can live healthily ever after, for it tells you how."

CHIROPRACTORS—OF COURSE

An anonymous Milwaukee friend suggested that the patient have a chiropractor give "some spinal adjustments." The writer (evidently a woman) said they could take her word for it "as we always have chiropractors work on our babies when ill." And, as a parting shot: "Of course the medical men will be against this, but just try it just once."

A prepaid telegram:

"Miss X————, Noted Fever Case, Escanaba, Mich.

"You have tried the rest now try the best, *viz*, your local chiropractor. I am a chiropractor and I know what chiropractic can do. Stop flirting with death and call on a chiropractor immediately and wire or write me the outcome. I am paying for this message in hopes of saving your life. Yours for health.

E. D. HEMPHILL, D.C., Chiropractor, Saginaw, Michigan."

From Cleveland, Ohio, came an unsigned letter from a man who said that he had had a similar high temperature until "some one told me of a mechano-therapy doctor." One treatment cured him! As a sporting proposition, he added: "To show you how sure I am of him curing you I'll just bet my whole week's pay and more."

William E. Gates, Shirley, Ill., wrote: "Having read of your exceptional case in the News Papers and being an Astrologer I would like very much to have your birth date. If I find anything that will benefit you, I will send it." Mr. Gates even enclosed a stamped addressed envelop.

An anonymous letter from Toledo, Ohio, enclosed the card of "J. A. Aldridge, Divine Healer." The letter detailed some of Aldridge's marvels and expressed the wish that the patient might come to Toledo and see the "healer." It closed with the statement: "Do wish your doctor could bee wright with him. They mite make good to Be togather."

A Chicago woman insisted that "she never saw or heard of a fever but what I could heal in a few minutes when I had half a chance and even when I don't have even when they are supposed to be dying." The writer modestly mentioned that she had "healed seventeen cases of consumption and four

were dying and several cancers and tumors in a few minutes when dying, two in one visit."

One W. L. Brown of New York City sent a letter by special delivery. "I feel," wrote Brown, "that I can by an application that has been revealed to me for years and had been successfully applied in cases somewhat simular [sic!] to yours," bring the patient back to normal. "There isn't the least harm in it . . . my revelation is from the external side only." Mr. Brown explains that it is a "gift."

On the stationery of the National Home for Disabled Soldiers, Leavenworth County, Kansas, came a letter from one J. H. Woodruff, who seems to call himself "i John the Prophet." It read:

"My Dear Miss Lady you have one of the New Diseases that the other Prophets spoke a Bout that Would Baffle the Doctors. You Plase this Letter on your head and Put on Bonnet or hat and Were it ½ hour and your Fever Will go down if you have any Faith in god and i Will do the Balence."

A Bostonian, with nothing to sell, was quite sure that the patient's fever could be brought back to normal if she would "take wild cherry bark, steap it in hot water. Ad a little sugar and take a wine glass every two hours until you are normal."

"Dr. H. F. A. Meissel, Prof. of N. S. of L. E." Terre Haute, Ind., wrote, enclosing his business card and an advertising poster. Mr. Meissel's specialty is "Nature's Tissue Cell Food" which "cures any ailment of man or beast promptly from the slightest cold to the worst ailment ever named." Mr. Meissel recommended "Nature's Tissue Cell Food." No price mentioned.

A physician in a Wisconsin town wrote that "at the risk of being called an egotist" he was certain that he knew the cause of the patient's superheated condition. "It is a disfunctioning of your ductless glands that means the thyroid, the pituitrery and the supra adrenal glands." The doctor went on to state that these glands "secret a serum" that "serves to maintain an equiblerium." [sic!] He stated that he had taken the liberty of writing to the editor of an Escanaba paper giving his views on the case and had sent the editor "a prescription composed of ductless gland secretions to be administered artificially to stimulate glands to a normal function." If the patient's physician would but give her this prescription, everything would be well.

Correspondence

"THE EARLIEST RECOGNITION OF APPENDICITIS—AGAIN"

To the Editor:—Dr. Leonard A. Mackall (THE JOURNAL, February 24, p. 572) says that the first case of appendicitis is that described by Heister in 1753, and that this fact was first pointed out by Dr. R. S. Rudolf of Toronto in the *Canadian Medical Association Journal*, May, 1913. In the third edition of Dr. Deaver's book on appendicitis, published in Philadelphia by Blakiston in 1905, I revised the chapter on the history of appendicitis, and there at page 16, Heister's case is noted and at page 11 a case of appendicitis described by Fernelius in 1567 is described. The original references to all these cases were consulted in the library of the College of Physicians of Philadelphia.

ASTLEY P. C. ASHHURST, M.D., Philadelphia.

NOSTRUM GUZZLING A CENTURY AGO

To the Editor:—The following quotation may shed some light on the status of the "Propaganda for Reform" a century and more ago. It is from "A View of the Nervous Temperament," by Thomas Trotter, M.D., Late Physician to His Majesty's Fleet, etc., etc., first published in London in 1806:

All nervous persons are uncommonly fond of drugs; and they are the chief consumers of advertised remedies, which they conceal from their medical friends. Among some well-meaning people, this inordinate desire for medicine has frequently become of itself a disease. With many of them, physic, to be useful, must be clothed in mystery; and the moment a discovery is made of the composition, the confidence is lost. Medical attendants have too often brought this punishment on themselves. Were they unanimous in combating the prejudices of mankind, by candour and openness of conduct, by a fair avowal of the imperfections of their art, and the honest confession that the articles of Materia Medica form but a small portion of its resources, they would not so frequently see their commands disregarded, or learn that their compounds have been thrown out of a window. This is the only way in which I can account for so many persons of good sense and discernment, consigning themselves and families into the hands of impudent and illiterate quacks.*

The asterisk refers to this footnote:

The duty on quack medicines at this time is estimated at upwards of £300,000 annually. From this it may be supposed that ignorant pretenders to medicine take not less than *two millions* out of the pockets of the community!!

GEORGE BEVIER, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CATHARSIS OF NURSING MOTHERS

To the Editor:—1. Please mention a list of cathartics which, when ingested by the nursing mother, are known to appear in the milk. 2. Can you advise what measures may be taken to secure catharsis in a nursing mother suffering with chronic constipation? Kindly use my initials in publication. H. J. O.

ANSWER.—1. It seems impossible to furnish a list of cathartics as requested by our correspondent. So far as is known, no chemical work has been done on this question. The fact, however, is abundantly substantiated that many cathartics taken by the nursing mother will affect the suckling infant. It would be much easier to mention those evacuant measures that will not affect the child when taken by its nursing mother, thus answering at the same time the second question.

2. A coarse diet, with fruit and vegetables predominating, and the ingestion of an abundance of water and of fat will tend to minimize the necessity for cathartics. Bran, though a dietetic measure, is frequently so active in favoring evacuation that it needs to be mentioned especially. One tablespoonful of it may be taken three times a day with meals. If the diet is insufficient, liquid petrolatum in tablespoonful doses morning and evening will probably soften the stool and favor its passage. Abdominal massage and gymnastics would be advised in case medicinal treatment failed. Should mechanotherapy not be available, or when the chief delay occurs in the last portion of the large bowel, then evacuant enemas of soapsuds or saline solution will be effective.

INFLUENZA, GRIPPE AND "FLU."

To the Editor:—Please tell me what is the opinion of those best qualified to know concerning the relationship of the recent epidemic of illness in Chicago and the so-called Spanish influenza of 1918. I am far from clear about classifications, and assume that many coryzas rank as influenza in the newspaper statistics. What relation does our prewar la grippe bear? In England it has long been usual to call coryza flu. Are we not adopting that custom? J. W. W.

ANSWER.—It seems that most physicians are inclined to regard the recent epidemic of respiratory infection in Chicago as one of influenza and as identical with the great epidemic of 1918. At present the main reason for this impression, no doubt, is the similarity of the two outbreaks in symptoms and complications. It is perhaps too early for reports of systematic bacteriologic and anatomic observations, and it is possible, of course, that such studies may reveal peculiarities in the present epidemic that will suggest a distinctive etiology; but as yet nothing of that sort has been intimated. Undoubtedly, various infections may cause coryza as well as other common symptoms and lesions, and in view of the tremendous significance to human welfare of the recent influenza pandemics, it is not strange that the newly coined "flu" should be crowding out older designations for what may be distinct diseases that are more or less similar in their manifestations. So long as the causative agents of influenza and similar diseases remain obscure, precise differentiation on the etiologic basis of outbreaks such as referred to in our correspondent's letter probably cannot be made.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

IDAHO: Boise, April 4. Dir., Mr. Harry L. Fisher, Boise.
MAINE: Portland, March 13-14. Act. Sec., Dr. Adam P. Leighton, 192 State St., Portland.
MONTANA: Helena, April 3. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

THE STATUS OF GRADUATE MEDICAL EDUCATION IN THE UNITED STATES IN 1922-1923

Report to the Council on Medical Education and Hospitals of the American Medical Association by a Special Committee on Graduate Medical Education*

READ BY THE CHAIRMAN

LOUIS B. WILSON, M.D.
Director, Mayo Foundation of Medical Education and Research
ROCHESTER, MINN.

Since October, 1922, the Special Committee has attempted a survey of the present status of graduate medical education in the United States. The chairman of the Special Committee and the secretary of the Council have personally visited most of the schools in the United States which announce opportunities for formal graduate medical study, and a number of universities which provide opportunities for formally registered graduate study in preclinical branches, and opportunities for informal graduate study through internships, residencies, and so forth. In addition, a few hospitals that provide special internships in ophthalmology, otolaryngology and rhinology and dermatology have been visited.

An attempt has been made to collect, in each instance, information concerning the corporate character of the institution and its relationships to other institutions, its financial resources and annual expenditures, its teaching resources in laboratories, hospitals, dispensaries, libraries and museums, the extent and general character of its teaching staff, its standards for admission of students, the name, home address, medical school and year of graduation of each student enrolled in the institution during 1922, the length and character of its courses of study in various fields, its methods of determining and recording the progress made by its students, and the character and form of certificates granted by the institution.

PROGRESS SINCE LAST SURVEY

In general, it may be said that there has been a very decided improvement in the general character of the graduate study of medicine in the United States since the committee's preliminary survey in December, 1919. However, there still remain institutions in which the conditions are almost inconceivably bad, though in others work on the highest plane of university graduate study is in progress. The Universities of Minnesota and Pennsylvania, the New York Post-Graduate School, and the Universities of Illinois, Harvard and Tulane have made the greatest advances in the organization of their facilities for graduate study in clinical branches. Chicago (Rush Medical College), California and Columbia universities have formulated plans for graduate study, and have already begun work in certain clinical fields, or expect to do so in the near future. Several other schools, as for example Johns Hopkins Medical School, and Bellevue Medical School, without general plans are giving opportunities for graduate work in a few clinical fields.

OPPORTUNITIES FOR ADVANCED STUDY IN PRECLINICAL FIELDS

In a number of the university medical schools, opportunities for graduate study in the preclinical branches have long existed. Usually these opportunities are a part of the graduate school of the university in which the students are registered. As far as the committee has been able to determine, there has been no material increase in the number of graduate sudents availing themselves of these opportunities, except at Johns Hopkins and the University of Minnesota.

The opportunities for graduate study in preclinical laboratories and in informal or short courses in clinical fields in the Universities of Colorado, Chicago, Northwestern, Indiana, Iowa, Maryland, Michigan, Washington, Nebraska, Pittsburgh, Western Reserve and Virginia have been surveyed only through correspondence or the school bulletins.

SCHOOLS OF PUBLIC HEALTH

The graduate work in the school of public health in the Universities of California, Pennsylvania, Harvard, Michigan, Yale, Johns Hopkins, Albany, Bellevue and Wisconsin have not been surveyed. This has not been because your committee was not interested but because it felt that this work was so well organized in the institutions named that for the time being a survey might be omitted.

ADVANCED STUDY IN CLINICAL FIELDS

Any discussion of the general character of graduate work provided by medical schools must take into consideration the demands from graduate students. Broadly speaking, these demands come from two groups of physicians: first, those desiring to fit themselves for practice of some special field of usually clinical medicine and, second, those desiring to improve themselves in general practice or in the practice of a specialty in which they are already engaged.

The first group consists largely of recent graduates who wish to fit themselves in a special field, either preclinical or clinical, and usually without engaging in general practice as a means of livelihood in the meantime; or of older graduates who have been in general practice for several years and who wish to fit themselves for, usually clinical, practice in some special field, using their experience in general medicine as a basis for their further study. The larger number of graduate students in both of these groups are still obtaining their preparation informally in advanced internships, residencies, assistantships, apprenticeships and various minor teaching positions in medical schools and the hospitals attached thereto. Their ability to practice in their chosen field is usually a matter of self-determination, occasionally aided by advice from their immediate superiors. At present, public recognition of special attainments in limited clinical fields are available to men so prepared only through membership in one or more of the various specialists' associations, as the American College of Surgeons and the American Ophthalmologists. A few universities, notably the Universities of Minnesota and Pennsylvania, now have their opportunities well organized for such preparation in clinical fields, including supplementary study in supporting preclinical fields, and recognize the graduates' attainment of proficiency by the granting of advanced degrees.

The committee recommends that graduate students of either of these two types, as well as medical schools contemplating the provision of opportunities for their preparation, should study carefully the recommendations of the various subcommittees in the special fields of medicine presented before this Council at its 1921 meeting.

While the granting of certificates or advanced degrees for work of the character described above must be left to the discretion of the institutions providing the opportunities, your committee believes that if any form of advanced degree or diploma-like certificate which may be used for wall display be granted, the principles enumerated later in this discussion should be followed.

The second group of physicians desiring to make further preparation either in general practice or in some special clinical field in which they are already engaged includes men and women of all degrees of preparation, from the most meager to the most advanced. They ask for opportunities for

* The committee consists of DRS. LOUIS B. WILSON, Chairman, Rochester, Minn.; JOHN M. DODSON, Chicago; ALFRED C. EYCLESHYMER, Chicago; VICTOR C. VAUGHAN, Chicago; J. M. T. FINNEY, Baltimore; EDWARD JACKSON, Denver; JAMES EWING, New York; WILLIAM PEPPER, Philadelphia, and, ex-officio, ARTHUR DEAN BEVAN, Chairman and N. P. COLWELL, Secretary of the Council on Medical Education and Hospitals.

study ranging from a casual visit to a clinic, a few days or a few weeks of intensive instruction, to a year of laboratory or clinical experience. As a result, the provision of opportunities which they may properly take advantage of without impossibly long interruptions of the practice presents the most complicated problem. At the outset your committee recognizes the very great need for continuation study, aside from that obtainable in daily practice and through personal reading, by the general practitioner and the specialist. New developments in diagnosis and treatment must be studied, and additional skill in diagnostic and operative procedures obtained. Unfortunately, the period which the practitioner can usually afford to take is too frequently so brief that his instructor who is responsible for the care of patients does not feel warranted in relinquishing any of that responsibility to him. The instruction, therefore, must usually be limited to lectures, demonstrations and laboratory work. Where periods of several months can be spent in one field, the instructor may sometimes place clinical material at the disposal of the practitioner-student. However, much good is being accomplished by lectures and laboratory courses and clinical demonstrations, however brief. Your committee would recommend for the consideration of prospective practitioner-students, and of other universities, the work in the short courses for practitioners under various names provided by the New York Post-Graduate School and the Universities of Pennsylvania, Tulane, Harvard, Johns Hopkins, Minnesota, Colorado, Illinois, Indiana, Iowa, Washington, Nebraska and Bellevue, and also the "extension courses" being carried on by the University of Pennsylvania.

ADMISSION REQUIREMENTS

At present it would seem that the least admission requirement should be graduation from an acceptable medical college, or, in the case of older reputable physicians, evidence of licensure before graduation was required. Many schools are not giving sufficient attention to entrance requirements, and serious abuses exist.

TEACHERS

In some institutions, the courses of instruction are given by men with inadequate experience not only in the subject matter of their fields but also in teaching. It is believed, for example, that the general practitioner who can spend only a short period in acquainting himself with the newer things in diagnosis and treatment should, if possible, receive his instruction from the very best man available. Certainly instruction should not be left to men who are recent graduates of inferior schools and who have not been able to obtain teaching recognition on the faculties of acceptable medical schools.

LABORATORY FACILITIES

It cannot be assumed that all graduate work necessarily requires the use of laboratories for instruction; but most of it does, and where courses obviously requiring such facilities are offered, adequate laboratories should be provided. In many institutions this is far from being true at present.

LIBRARY FACILITIES

Any graduate work in medicine demands intensive reading in the field studied. Library facilities in many institutions surveyed are either totally lacking or wofully inadequate. In some cities, however, this lack is provided for by good medical libraries attached to other nearby institutions.

HOSPITALS AND DISPENSARIES

Graduate courses in clinical subjects can rarely and with difficulty be profitably presented in lectures only. Your committee recognizes the difficulties in bringing short term graduate medical students in responsible contact with patients, but some institutions are solving this problem in a creditable manner, apparently without harm to the patients. Certainly clinical material must be available for demonstrations to, if not for personal use by, the graduate student.

CERTIFICATES

A few of the previously named institutions and a number of others not named are granting diploma-like certificates of attendance to practitioner-students for relatively short periods of study. One institution, not named, grants such a certificate after one week of study. After careful consideration, your committee believes that the granting of diploma-like certificates which may be used for wall display, to any except those whom the institution knows to be proficient in a particular field, is fundamentally wrong. It is usually urged that these certificates are certificates of attendance only. Though this may be true, since the name of the student and the name of the specialty are usually stated in such a manner as quickly to catch the eye of the observer, it is believed that the public in most instances does not readily distinguish between such a certificate of attendance and a certificate of proficiency in the specialty named. Hence they assume that the physician who displays such a certificate on his wall is truly qualified to practice the specialty named. This often false impression is all the more harmful if the certificate bears the name of some well known university, or if there is included in the name of the institution the name of some special field of medicine, as surgery or ophthalmology, or if it bears the legible signatures of men widely known as specialists in any field of medicine or surgery. Your committee believes that such certificates may readily be, and frequently are, used by unqualified physicians to mislead the public as to their qualifications in the fields named on the certificates.

If a graduate school determines that one of its students is thoroughly competent to practice in any special field of medicine or surgery, your committee sees no reason why it should not give him a certificate to that effect, or confer on him an advanced degree if it so desires. If, however, it does not know that one of its graduate students possesses such competence, under no circumstances should it grant him any sort of certificate which can be readily displayed on the wall of his office to mislead his patients. Your committee further believes that no certificate of proficiency or which may be construed by the public as indicating proficiency should be granted by any graduate institution to any one who the institution does not know is proficient in that field, nor to any one who has not completed one academic year in full time study of a single special subject in the institution granting the certificate. For lesser degrees of proficiency and shorter periods of study the most that should be granted in the way of a certificate should be a statement in letter form or on a card which does not contain all the essential data on one side. Neither should it resemble a diploma, be suitable for wall display, nor contain any portion easily read at a distance of more than three feet.

Your committee further believes that these principles should apply also to certificates from hospitals for internships in special fields in which the special field is named. They should not necessarily apply to certificates from hospitals for general internships or resident service in which no special field is named, since the responsibility for license to practice general medicine rests with state medical examining boards.

It is only to protect the public against inadequately prepared specialists that the foregoing provisions are suggested. It is, however, believed that the work of schools offering opportunities for graduate study for student-practitioners would be greatly simplified by thus restricting the issuance of diploma-like display certificates, and your committee hopes that when the attention of schools is called to the reasons for such restriction, they will adopt regulations in conformity with the foregoing recommendations.

Your committee recommends as a basis for approval by the Council the following:

PRINCIPLES REGARDING GRADUATE OR POSTGRADUATE MEDICAL SCHOOLS, SCHOOLS OF LABORATORY TECHNIC, AND OTHER INSTITUTIONS PROFESSING TO FURNISH COURSES OF INSTRUCTION FOR GRADUATES IN MEDICINE

1. *Admission.*—Opportunities for graduate study should be open only to those who have received the degree of Bachelor or Doctor of Medicine from medical colleges considered acceptable by this Council, or to reputable physicians who were licensed in certain states before graduation was required.

2. *Records.*—Records should be kept by each institution showing (*a*) the preliminary and professional entrance qualifications of every student, which should be verified by documentary evidence; (*b*) the subjects for which he is enrolled; (*c*) evidence of his faithful attendance at his work; (*d*) whether or not an advanced degree or diploma-like certificate was granted, and (*e*) especially evidence of the student's proficiency as demonstrated by his routine or research work, examinations or otherwise.

3. *Teachers.*—The school should be supplied with a corps of skilled teachers responsible for the work in all subjects in which opportunities for study are announced. This should include teachers for essential review or advanced work in the preclinical sciences, as well as those who have in charge work in clinical subjects. The teaching staff should be made up of graduates of or teachers in Class A medical colleges, or of high grade educational institutions. The faculty should be organized under the various teaching departments in which work is offered with a competent professor at the head of each department.

4. *Laboratories.*—The school should have ample laboratories to provide proper review or advanced work in the preclinical sciences essential for the specialty or specialties in which opportunities are offered.

5. *Clinical Material.*—The school should have either a large outpatient clinic with 100 or more patients each day, or a teaching hospital with a daily average of 200 or more patients; or, if teaching is limited to a single specialty, a hospital of not less than twenty-five patients daily, or both such dispensary and hospital. In brief, it should have sufficient clinical material to enable it to provide satisfactory clinical study in the specialty or specialties for which opportunities are offered.

6. *Library and Museum and Special Apparatus.*—Unless the graduate school otherwise has the convenient use of a good medical library, it should have a medical library of its own. This should include an ample supply of modern text and reference books, files of bound medical periodicals, and the essential indexes. It should also receive regularly thirty or more standard medical periodicals, the latest numbers of which should be on tables or in racks where they may be easily accessible to the graduate students.

The school should be supplied with adequate museum facilities, including anatomic and pathologic specimens, such as can be used for study by graduate medical students. It should also be supplied with adequate special apparatus, such as stereopticons, balopticons, photomicrographic outfits and roentgen-ray equipment.

7. *Annual Announcements.*—The graduate school should publish annually announcements, bulletins or catalogues, giving detailed information in regard to its teachers, laboratories, dispensaries and hospitals, and outlines of the various opportunities for study offered, as well as a complete list of the students enrolled during the last preceding year, showing their medical schools and years of graduation, the subjects for which they were registered, and to whom advanced degrees or diploma-like certificates were granted.

8. *Type of Institutions Not Acceptable*—Work in schools owned or controlled by individuals or by corporations conducted for profit, or work given in hospitals owned or controlled by individuals, is not eligible for the approval of the Council on Medical Education and Hospitals.

No institution the name of which indicates a specialty or group of specialists will be considered as acceptable unless it has an adequate number of skilled teachers and ample laboratory or clinical facilities, and offers opportunities for study sufficiently well organized and thorough to permit the students to acquire a reasonably complete knowledge and skill in that specialty.

9. *Advanced Degrees, Diplomas, Certificates.*—No advanced degree, diploma or diploma-like certificate should be granted for a period of study extending over less than one college year of at least thirty-two weeks in length, and which includes at least six hours of actual study each day, and unless scholarship records of the students granted such certificates show that they have, throughout the period, faithfully attended to their studies, and unless reasonable tests show that they have faithfully and satisfactorily completed the work for which they were registered.

CLASSIFICATION OF GRADUATE MEDICAL SCHOOLS

The classification of schools according to these principles and according to their present status is a complicated problem, largely because of the great variation in the purposes and length of the courses offered. Indeed, for the present it seems necessary to ignore both these factors and to consider only the observation of entrance requirements, the provision of adequate material, personnel and organization to accomplish properly the work advertised, a proper guaranty of stability and responsibility in the institution, and the protection of the public from unwarranted certification of specialists.

In accordance with the foregoing principles, your committee recommends the following classification on the present status of the graduate schools inspected:

A-1. Those which have adequate equipment, which are furnishing acceptable graduate courses of instruction in all the various specialties, and which grant advanced degree diploma-like certificates only to students who are qualified to receive them.

A-2. Those which have adequate equipment, which give acceptable course in one or two specialties, and which grant advanced degrees or diploma-like certificates only to students qualified to receive them.

B-1. These which have limited equipment but which grant no advanced degrees or diploma-like certificates, or if so, only to students qualified to receive them.

B-2. Those which have reasonably good equipment but which are overgenerous in granting advanced degrees or diploma-like certificates to students who have not secured adequate qualifications.

C-1. Those which are (*a*) inadequately equipped; or (*b*) are not properly organized; or (*c*) are not conducted in a satisfactory manner; or (*d*) grant advanced degrees or diploma-like certificates on courses which are inadequate to warrant such certification.

C-2. Those which offer courses in any specialty which are too short to insure any reasonable degree of efficiency in any specialty, or which give advanced degrees or diploma-like certificates for such unduly brief courses.

Ohio December Examination

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports the oral, written and practical examination held at Columbus, Dec. 6-8, 1922. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 25 candidates examined, 23 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Yale University	(1922)	89.9
Howard University	(1921)	80.5
Chicago College of Medicine and Surgery	(1916)	81.7
Hahnemann Medical College and Hospital, Chicago	(1922)	83.6
Loyola University	(1918)	75*
Northwestern University	(1922)† 81.5, 90.2, (1922)	88.5
University of Louisville	(1916)	83.7
Harvard University	(1922) 86.4, 87,	90.7
Eclectic Medical College	(1905)	76.9
Jefferson Medical College	(1921) 82.7, (1922)	85.1
Temple University	(1919) 91.1, (1921)	77.1
University of Pittsburgh	(1922)	90.1
Meharry Medical College	(1908)	75‡
University of Vienna, Austria	(1915)§	82.5
University of Szedin, Hungary	(1912)§	82.8
University of Naples, Italy	(1919)§	77.1
FAILED		
University of Naples, Italy	(1914)§ 52, (1921)§	41.3

* This candidate was given 1.9 per cent. credit for years of practice.

† These candidates have finished the medical course, and will obtain the M.D. degree after they have completed a year's internship in a hospital.

‡ This candidate was given 2.4 per cent. credit for years of practice.

§ Graduation not verified.

Book Notices

PERSONAL HYGIENE APPLIED. By Jesse Feiring Williams, A.B., M.D., Associate Professor of Physical Education, Teachers College, Columbia University. Cloth. Price, $2.50 net. Pp. 412, with illustrations. Philadelphia: W. B. Saunders Company, 1922.

This book is a serious attempt to present to the intelligent public, and particularly to the college student, a comprehensive survey of health in education and education in health. It is the author's belief that the important factor of health in life involves not only the presentation of rules of health, but also bringing into contact with such rules the deep and overflowing source of human action where ideals, ambitions, prejudices and hopes are born. In the first five chapters, therefore, the author considers the meaning of health, the health problem, intelligence and ideals, the approach for knowledge of health, and science and attitudes. In these chapters he places clearly before the reader the importance of rationality in health as well as in any other factor in human life. His definition of health is "the quality of life that renders the individual fit to live most and to serve best." In other words, health for health's sake is not a satisfactory definition. In his chapter on science and attitudes he discusses the various cults and sects which are making inroads into the health field. Here again his statements are well founded on statistics. His judgments are sincere and careful, and his illustrations are attractive and convincing. In the remainder of the book, various chapters are devoted to special hygiene of the various parts of the body, divided by systems. These chapters are wholly practical, and they are full of excellent devices for the individual who is seeking didactic and reliable information. The book is one which the physician may safely recommend to his patient.

MEDICAL AXIOMS, APHORISMS AND CLINICAL MEMORANDA. By James Alexander Lindsay, M.A., M.D., F.R.C.P., Professor of Medicine in the Queen's University of Belfast. Cloth. Price, 6 shillings net. Pp. 192. London: H. K. Lewis & Co., Ltd., 1923.

The author has here collected axioms and brief statements concerning the diagnosis and treatment of various conditions. The statements are taken from his own experience and also from the experience of several hundred ancient and modern authors. The axioms are thought-provoking and instructive. Any one of them is the text for a complete paper, and probably says in a few words what most authors would require a paper to bring out. A few specimens are quoted:

Never believe what a patient tells you his doctor has said.—*William Jenner.*

The first qualification for a physician is hopefulness.—*James Little.*

Give your prognosis in heart disease on the best supposition, treating your patient on the worse.—*Clifford Allbutt.*

Chorea is commoner in the more emotional sex and at the more emotional age.—*Hughlings Jackson.*

I am of the opinion that our first duty is to inquire whether a thing be or be not before asking wherefore it is.—*William Harvey.*

ALGUNOS ASPECTOS DE LA PSICOLOGIA DEL NIÑO. Por el Doctor Honorio F. Delgado, Fundador del Seminario Psico-Pedagógico. Con Prologo del Doctor William A. White, Superintendent of the St. Elizabeth's Hospital (Washington, D. C.). Paper. Pp. 84. Lima, Peru: Imprenta la Opinion Nacional, 1922.

Not only have the psychanalytic waves washed the shores of every civilized country, as stated by Dr. White in his preface, but they have splashed everything on land. This event, however, holds no terrors for at least one of the leading South American psychiatrists, the author of this ambitious essay on "Some Aspects of Child Psychology." He even desires to widen the scope of Freud and Jung's pet conception. After reviewing the nature, mental development, personality and tendencies of the child, Dr. Delgado sees a chance to supply the deficiencies of education through the introduction of psychanalysis in the schools, and the teaching of what he calls philosophy of life. All may agree with the Peruvian professor as to education being sorely in need of reform. Few will endorse his medicine for the ailing patient. Most psychiatrists will remain skeptical as to the far-reaching good to be derived from a school psychanalysis service. Nor can one share the author's optimism as to the reinterpreted message of "Christ, Lao-Tse, Heraclitus, Euripides, Plato, Horace, Seneca, Plutarch, Sankara, Montaigne, Shakespeare, Goethe, Nietzsche and two dozen others" creating a race of supermen. It would take indeed a superman—or a psychanalyst—to interpret the message, even without trying to harmonize the doctrines, of, say, Horace the Epicurean poet, and Seneca the stoic philosopher, or Euripides the cynical dramatist, and Plato the idealist sage, or Lao-Tse and Nietzsche. The hopelessness of his plan is shown by the assertion that Germany became first among nations through her putting into practice the axiom of Durch Kennen zum Koennen.

OTO-RHINO-LARYNGOLOGY FOR THE STUDENT AND PRACTITIONER. By Dr. Georges Laurens. Authorized translation by H. Clayton Fox, F.R.C.S. With a foreword by Sir J. Dundas-Grant, M.A., M.D., F.R.C.S. Second edition. Cloth. Price, $4.50 net. Pp. 350, with 584 illustrations. New York: William Wood & Co., 1922.

The first edition of this work was spoken of in these columns as the ideal textbook for practitioners and students, because of its essentially practical character. In the present volume none of this value is lost, and numerous additions have been made. The author's minuteness of detail, his brief, sensible descriptions, the clever arrangement of his text, and, above all, his sane instructions under the headings What to do and What to avoid give to the student a broad view of this field, and to the practitioner a safe working basis in the absence of the specialist.

PROBLEMAS ACTUALES DE LA DOCTRINA DE LAS SECRECIONES INTERNAS. Por el Dr. G. Marañón. Paper. Price, 18 pesetas. Pp. 265, with 40 illustrations. Madrid: Ruiz Hermanos, 1922.

Previous publications of this facile Spanish author have dealt largely with the clinical aspects of the ductless glands. The larger part (170 pages) of the present volume is denoted to a review of the physiology of the endocrines. Two chapters are given to the glandular pathology, and one chapter to organotherapy. Those who can read Spanish will find this book on the ductless glands well worth attention, as in the presentation and critical analysis of facts and theories in this field Dr. Marañón shows himself the equal of the best authors in English, German and French.

DOSIERUNGSTABELLE FÜR DIE RÖNTGEN-THERAPIE. Allgemein gefasste und nach den Spezialfächern geordnete Bestrahlungs-Rezepte für die zugänglichen Krankheiten mit Berücksichtigung der neureren Forschungen den Bedürfnissen der Praxis entsprechend gestaltet und mit Erläuterungen versehen. Von Dr. G. Holzknecht, Professor für Medizinische Radiologie an der Universität. Paper. Price, 3 marks. Pp. 33. Leipsic: Franz Deutike, 1922.

The author, one of the pioneers in roentgenology, issued this little book as a guide to enable the beginner to determine the roentgen-ray dosage suited to the treatment of a given case. The basis for a scientific and exact selection of the dose is furnished by the recognition of the paramount importance of the dispersion rays and by the introduction into the roentgenologic practice of the measuring of the wave length. In order to simplify the choice of the dose, the author classifies all conditions to be treated in four groups: The first, requiring extreme doses, is represented by carcinoma; the second is the group that needs strong, but not extreme, irradiation; the third group requires only a medium strong dose, and the fourth group requires only weak irradiation. The necessary measuring for the construction of the various intensities was performed with the help of the intensimeter, the radiometer and the spectrograph. All the diseases are catalogued according to the medical speciality in which preferably they are to be treated.

SEMIOLOGIA DOS SOPROS DIASTOLICOS DA BASE. Especial Estudo da Insufficiencia Aortica Myocardica. Por el Dr. Jose Barboza, Assistente de Clinica Medica da Faculdade de Medicina do Rio de Janeiro. Paper. Pp. 97, with 3 illustrations. Rio de Janeiro: Typ. da Revista dos Tribunaes, 1921.

This study of myocardiac aortic regurgitation was granted the Francisco de Castro prize by the Rio de Janeiro Academy of Medicine. While, as pointed out by Austregesilo in the preface, exceptions may be taken to some of the author's sweeping statements, no one can doubt his sincerity or complain of obscurity in his statements. As to classification of

cardiac murmurs, Dr. Barboza considers Gallavardin's the least incomplete, although differing with him in the definition of functional murmurs. A remarkable tribute is paid to MacCallum of Johns Hopkins, as deserving credit for "the best studies on the muscular architecture of the heart." There is little original work in the study, but the author has read critically previous contributions and interpreted them according to his own views.

NURSING IN DISEASES OF THE EYE, EAR, NOSE AND THROAT. By Harmon Smith, M.D., Surgeon in Throat Department of the Manhattan Eye, Ear and Throat Hospital, (Editor), John R. Shannon, M.D., Wendell Phillips, M.D., John E. Mackenty, M.D. Assisted by David H. Webster, M.D., John R. Page, M.D., and Francis W. White, M.D. With Chapters by Herbert B. Wilcox, M.D., and Helena M. Toothaker, R.N. Third edition. Cloth. Price, $2.25 net. Pp. 333, with 73 illustrations. Philadelphia: W. B. Saunders Company, 1922.

This compact little book contains a wealth of information, not only along the lines of nursing but also along those of the operative and nonoperative treatment of diseases of the eye, ear, nose and throat. The first section deals with the germ theory of diseases, antiseptics, disinfection of rooms and clothing, preparation of surgical dressings, and operating room technic. The nurse's duties in operations and emergencies, as well as the feeding and care of infants, are well covered. The second section is devoted to the eye. The anatomy, the physiology and the common remedies used in ocular conditions are considered quite completely. Then follows a discussion of contagious eye diseases as well as some of the operative procedures. In the third section, covering the ear, we have at first an outline of the physiology, together with the examination of the ears. Functional tests for hearing and the testing of the static labyrinth are given, especially the former. The ordinary tuning fork tests are well described. Then follow diseases of the external, middle and internal ear. In the fourth section, the anatomy of the nose is considered. The fifth and last section covers the pharynx and larynx, their anatomy, and the diseases peculiar to these structures, particularly with reference to the larynx. Many details are given, including examination, edema of the larynx, benign and malignant tumors, tuberculosis, syphilis, foreign bodies, tracheotomy, laryngectomy and thyroidectomy. Not only does this volume give innumerable points of information for nurses, but it would be a valuable book for the general practitioner; he would be spared the necessity of consulting large works by the information here given on many points of general interest to guide him in his treatment of the ordinary affections of the eye, ear, nose and throat with which he often comes in contact.

LIÇÕES DE CLINICA MÉDICA. Pelo Dr. H. Annes Dias, Prof. da Faculdade de Medicina de Porto Alegre. Paper. Pp. 418, with illustrations. Porto Alegre, Brazil: Livraria do Globo, 1922.

At the request of his pupils, the author, a professor in the Porto Alegre, Brazil, Medical School, has compiled some of the lectures on clinical medicine given by him during the last two years. Dr. Annes Dias follows the accepted methods in the analysis of cases. A number of illustrations are attached, but they add little to the value of the book, as most of them are not original, and the reproduction is poor. The appended index deserves commendation as setting a good example which other Latin authors and publishing houses might well follow.

THE TOPOGRAPHICAL ANATOMY OF THE THORAX AND ABDOMEN OF THE HORSE. By O. Charnock Bradley, M.D., D.Sc., M.R.C.V.S., Lecturer on Comparative Anatomy, University of Edinburgh. Cloth. Price, $5 net. Pp. 204, with 85 illustrations. New York: William Wood & Co., 1922.

This book is a successor of "The Topographical Anatomy of the Limbs of the Horse," by the same author. It is at once a regional, descriptive textbook, and a laboratory manual for use in dissection. It is excellently planned, and gives a clear and instructive account of each of the structures in each region. It is illustrated by reproductions of comprehensive drawings by Mr. James T. Murray, which constitute a valuable part of the work. Dr. Bradley has appreciated the fact that the B. N. A. terminology is better than any other for use, even in a book on the anatomy of a quadruped, and he has therefore adopted it, adding in footnotes an explanation of etymologies—a feature always appreciated greatly by students. In a few instances, B. N. A. terms are modified slightly to adapt them to the anatomy of the horse. For example, "cranial" and "caudal" are substituted for "superior" and "inferior," and "internal thoracic" for "internal mammary." In cases in which the structure of the horse differs materially from that of other mammals, there is a consideration of the primitive mammalian structure, and of the significance of the specialization as illustrated in this animal. To supply a systematic survey of the great functional systems, the need of which is always felt by students, tabulations are introduced in the back as appendixes, covering the arterial and lymphatic systems. The addition of similar tabulations covering the bony, muscular, venous, nervous and other systems would add greatly to the value of the book to the student. The work of the publisher has been admirably done. The illustrations are clear, and the book is convenient, durable and attractive.

DISEASES OF THE THYROID GLAND. By Arthur E. Hertzler, M.D., F.A.C.S., Professor of Surgery in the University of Kansas School of Medicine. With a chapter on Hospital Management of Goiter Patients by Victor E. Chesky, A.B., M.D., Associate Surgeon to Halstead Hospital. Cloth, Price, $5. Pp. 245, with 106 illustrations. St. Louis: C. V. Mosby Company, 1922.

This monograph in a brief way considers the entire subject of diseases of the thyroid from etiology to treatment. The first chapter, on etiology and pathogenesis, while brief from the standpoint of the mass of literature on the subject, is nevertheless an intelligent summary. In the chapter on pathology there is a goodly collection of photographs of gross specimens and of photomicrographs. The histopathology is adequately presented; the surgical pathology is not. This is particularly true of the data on exophthalmic goiter. Associated parenchymatous changes, and such subjects as the thymus and the suprarenals are too briefly considered. There is an excellent chapter on aberrant and intrathoracic goiter There is an excellent series of drawings illustrating anatomy and surgical technic. The book is essentially a personal work, and is interesting reading.

PROPÉDEUTIQUE ET TECHNIQUE UROLOGIQUES. Par G. Wiener, Ancien urologue adjoint à l'Hôpital Saint-Pierre de Bruxelles. Paper. Price 40 francs. Pp. 483, with 153 illustrations. Paris: Masson et Cie, 1922

There is little in this publication that does not appear in any of the current textbooks, while many important facts are missing. The author tries to show the difference in the quality of the urine, studied by the three glass test, in uncolored pictures. In describing the abdominal puncture of an overdistended bladder, he neglects to mention the dangers of this procedure and how to evade them, especially the possibility of injuring intestinal loops. The recommendation, in urologic operation, of the use of chloroform in preference to ether will not be popular with American surgeons. While much space is devoted to the Ambard constant, discarded as valueless by many clinicians, the modern physiologic renal tests are hardly mentioned.

EXPERIMENTAL PHYSIOLOGY. By Sir Edward Sharpey-Schafer, F.R.S., Professor of Physiology in Edinburgh. Third edition. Cloth. Price, $2 net. Pp. 131, with 90 illustrations. New York: Longmans, Green & Co., 1921.

This book contains directions for performing some of the fundamental experiments in physiology, especially experiments on muscle and nerve, and the heart (frog). The experiments outlined on mammals are fewer than are usually given in the physiology courses in the better medical schools in this country, but the book should prove interesting and helpful to instructors in physiology everywhere.

BODY MECHANICS AND HEALTH. By Leah C. Thomas and Joel E. Goldthwait, M.D. Cloth. Price, $1.50. Pp. 112, with 31 illustrations. Boston: Houghton Mifflin Company, 1922.

The authors consider briefly the problems of securing and maintaining correct posture while standing, sitting and walking. The book contains numerous illustrations and tables of progressive exercises for use in achieving the objects sought.

Medicolegal

Determination of Necessity for Operation by Results

(Union Iron Works et al. v. Industrial Accident Commission et al. (Calif.), 210 Pac. R. 410)

The Supreme Court of California says that in 1916 an employee fell from a ladder, breaking both legs and an arm. The corporations that may be called his employers placed him under the care of two physicians, but later removed him to their own private hospital, where he was treated by their own physicians. For four years after the injury, there was a continuous discharge of pus from one leg, due to necrosis of the bone and unhealed wounds. In February, 1920, he consulted one of the physicians who first treated him, who advised an immediate operation to remove the diseased bone. This advice was reported to his employers' physicians, but it was their opinion that such an operation would not be opportune until the clearing up of a discharging sinus in the left leg, and in this conclusion they were confirmed by an opinion to the same effect of another physician and that of the medical director of the industrial accident commission. The employers, therefore, refused to permit operation. After waiting nine months for their physicians to relieve his condition, the employee, in November, 1920, abandoning their treatment, placed himself under the care of the physician whom he had previously consulted. That physician performed two operations, which were a complete success, the flow of pus being stopped, the broken bones united and the wounds healed. Thereafter, the employee applied to the industrial accident commission for an award of $1,446.90, for the payment of expenses incurred by him in having these operations performed and for hospital fees and treatment attendant on the operations, which was granted; and is affirmed by the court.

It may be conceded that had this been an action for malpractice, or one founded on the old common-law liability of the employer, the time to determine whether a surgical operation was reasonably required would have been before the operation, and that if at that time there was a difference of opinion among competent physicians as to the necessity of an operation, no liability could be predicated on a failure to operate. The proceeding before the commission, however, was not an action for damages, nor was it based on the idea of fault on the part of the employer. It was founded on the provisions of the workmen's compensation act, which contemplates and calls for such medical and surgical services as will tend to secure the return of the workman to productive employment. Manifestly, if the treatment practiced and persisted in by physicians furnished by the employer, even though they are conceded to be skilled and competent in their profession, does not within a reasonable time effect a cure, and thereafter a course of treatment prescribed by other physicians procured by the injured employee does in fact seasonably effect a cure, then it cannot be said that the employer has furnished such medical and surgical treatment as was reasonably and seasonably required. The successful result of the operations in the instant case demonstrated that such was the treatment reasonably required to cure and relieve the injured employee from the effects of his injury. This being so, the refusal, after more than three years of unsuccessful treatment, of the employers' physicians to operate, despite repeated requests to do so, this refusal extending over a period of nine months, during which time the injured employee continued to suffer, and his condition apparently grew worse, was tantamount to a refusal to furnish the treatment seasonably required by the statute.

But before the injured employee will be entitled to compensation in such a case for expenses incurred in the treatment of him by a physician of his own selection, it will have to be shown that the treatment not only was a success, but that it was reasonably and seasonably necessary to cure and relieve him. Moreover, all the circumstances attending the treatment by the employers' physicians will have to be weighed by the commission in order to determine whether or not the treatment prescribed by the employers' physicians would, if it had been persisted in, have produced as speedy and as satisfactory a cure as did the treatment of the physician resorted to by the injured employee. In coming to a conclusion, the commission would necessarily take into consideration the period of time covered by the treatment of the employers' physicians and the results obtained during that time. In other words, the injured employee will be permitted, at the peril of having himself to pay the expenses of medical treatment, to secure the services of physicians other than those provided by his employer, this peril attaching unless it can be shown that the procurement of such services was warranted.

Malicious Prosecution of Insanity Proceeding

(Pickles v. Anton (N. D.), 189, N. W. R. 684)

The Supreme Court of North Dakota, in affirming a judgment for $6,000 damages in favor of the plaintiff, and in thereafter denying a petition for a rehearing filed by the defendant, says that it is entirely satisfied that an action will lie for the malicious prosecution, without probable cause, of a proceeding the object of which is to have a person adjudged insane. It has been held that the prosecution of such a proceeding without probable cause constitutes cruel and inhuman treatment within the contemplation of the laws relating to divorce, so as to afford a ground for a divorce. It would seem that if the baseless prosecution of an insanity proceeding is a wrong of sufficient magnitude to justify the severing of the marriage ties, it ought to furnish a ground for the award of damages; and in this court's opinion it constitutes a legal wrong for which the party injured is entitled to be compensated. As the name implies, malice is an essential ingredient of an action for malicious prosecution, but it must also be shown that the action or proceeding complained of was instituted without probable cause. The plaintiff may introduce evidence tending to show that the defendant, by the institution of the action or proceeding complained of, sought to accomplish some personal or private end. Malice need not be shown by direct and positive testimony. It may be inferred from circumstances. Reasonable or probable cause depends on the honest and reasonable belief of the party commencing the prosecution that the charge made is true. The fact that the plaintiff may have committed certain unlawful acts would not justify the defendant in charging that she was insane and in attempting to have her incarcerated in an asylum for the insane. In other words, it would not furnish probable cause for the inquisition for lunacy.

Liability for Injury Extended to Death from Second Operation

(Blackwell v. American Film Co., Inc., et al. (Calif.), 209 Pac. R. 999)

The Supreme Court of California says that, owing to the alleged negligence of the defendants, the plaintiff's husband suffered a fracture of one of his legs above the knee, and no union of the bone could be effected. A little more than six months after the accident, an operation was performed, which was unsuccessful. Mr. Blackwell sued the defendants for damages, and recovered a judgment for $13,762. About seven months after the first operation, a second operation was performed to effect a bone transplantation, and a short time after the operation the patient died. The judgment was paid to Mrs. Blackwell, as administratrix of her husband's estate. Thereafter, she, as administratrix, brought this action to recover damages for the death of her husband, and recovered a judgment against the film company for $10,000, which is affirmed.

The fact that the decedent recovered damages for his injuries would not, in itself, prevent a recovery in this case. The only question presented in this connection was whether it could be said that there was no evidence from which the jury might conclude that the accident was the proximate cause of Mr. Blackwell's death. According to the evidence, he was under the care of physicians and was receiving medical attention from the time of the accident until his death. The evidence also indicated that the second operation was a

step in the continuous treatment administered in an endeavor to cure him of the effect of his injuries. The jury might have found from the evidence that the operation was a proper one under the circumstances; in fact, there were no indications to the contrary. In such a case, the treatment by a physician cannot be held to be a new or intervening cause which would relieve the defendant from liability for the original injury.

The defendant film company emphasized the fact that the decedent in this action alleged that his injuries were permanent, and recovered damages on that basis. Such an allegation was immaterial in the case at bar. The measure of damages in the suit brought by him was based on his duty to use reasonable efforts to restore his health and earning capacity. The question in this case was what pecuniary loss was suffered by the plaintiff and her children by reason of the loss of the decedent in his crippled condition. This defendant also specified as error the overruling of its objection interposed to testimony by Mrs. Blackwell that the physician told her husband to go to the hospital to have the second operation. This ruling was correct. Mr. Blackwell had placed himself under the care of a physician, and it was proper to show that, in receiving treatment, he was following instructions given by the physician. In proving this fact, it was competent to admit testimony that certain orders were given. The testimony was not admitted to prove the existence of any fact related by the physician, but to prove that he made the statement in question. The admission of the testimony under such circumstances was not obnoxious to the hearsay rule.

It was insisted further that an instruction given the jury to the effect that, if the decedent used ordinary care in the selection of a physician, and submitted to the treatment prescribed by him, it would be no defense to show that the physician failed to give him the best or proper treatment conflicted with one to the effect that an error of treatment would not relieve the defendant, but, if the physician made use of the opportunity to perform an unnecessary and dangerous experiment on the decedent, and the experiment alone resulted fatally to the decedent, the defendant would not be liable. But these instructions were not in conflict. The former properly told the jury that mere concurring negligence on the part of the physician would not be a bar to a recovery by the plaintiff in this case. The latter told the jury that, if the physician stepped out of the proper field of treatment to perform an unnecessary and dangerous operation, as an experiment for his own benefit, it would constitute an independent, intervening act of the physician, for which the defendant would not be liable.

Physician's Report for Accident Industrial Board

(Emma's Case (Mass.), 136 N. E. R. 125)

The Supreme Judicial Court of Massachusetts says that an employee having suffered an injury to his left eye and certain compensation having been awarded therefor, the insurer sought a review and requested permission to introduce further evidence, which consisted of a supplemental report made on a reexamination by a duly qualified impartial physician appointed by the industrial accident board. By Section 9 of the workmen's compensation act, the report of such a physician shall be admissible as evidence in any proceeding, provided the employee and the insurer have been furnished with copies in good season. It is not conclusive. But by the statute, the report is put on the footing of evidence, if copies have been given to the parties in good season. It is not to be assumed that the legislature intended that the board or a single member should give any probative weight whatever to such a report unless it is used as evidence. It was discretionary with the board whether a report should be requested. But having been asked for and furnished and copies duly transmitted, the admissibility of the report did not depend on formal offer of proof. It was before the board for consideration in connection with all the evidence, and the provision of Section 10, that the admission of further evidence was discretionary, had no application. It was competent for either party to offer evidence to rebut or control the clinical statements and conclusions of the report, or to impeach the credibility, impartiality and qualifications of the certifying physician. But a failure to exercise such rights, or the enforcement of them could not affect the duty of the board to consider the report as evidence for whatever in their judgment it might be worth. Here the board denied the insurer's motion for permission to introduce the further evidence stated, and it is held that, as it was plain that the award was made on a part only of the material and competent evidence, the case must be remanded for further proceedings not inconsistent with this opinion.

Death of Child Falling from Bed in Hospital After an Operation

(Maxie et al. v. Laurel General Hospital (Miss.), 93 So. R. 817)

The Supreme Court of Mississippi, Division A, says that this action was brought to recover damages for the death of a child, 8 years of age, who had an attack of appendicitis, and was taken to the defendant hospital for care and an operation, was operated on, and shortly thereafter, when there was no attendant in the ward in which she was placed, fell off the bed and soon afterward died. At the conclusion of the evidence, the trial court, on motion of the defendant, directed the jury to return a verdict in favor of the latter, which was done; but the judgment entered accordingly is reversed on the ground that the liability of the defendant was a question for the jury. The supreme court holds that the business of a hospital for the sick and afflicted, conducted for private gain, carries with it an implied obligation to give the patients therein reasonable care and attention; and such a hospital, so conducted, is liable for an injury received by a patient therein resulting from the negligence of its employees. When a child, 8 years of age, in such a hospital, shortly after being operated on for appendicitis, was left by the employees of the hospital in a ward without an attendant or any means of calling assistance and while so situated for some reason fell from its bed, and its temperature soon thereafter rose rapidly, and in a few hours it died, the question of liability for such injury and death was one for the jury and not the court. Therefore, the court erred in directing a verdict for the hospital.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Mobile, April 17-20. Dr. H. G. Perry, State Board of Health, Montgomery, Secretary.

American Association of Anatomists, Chicago, March 28-30. Dr. Lewis H. Weed, Johns Hopkins Medical School, Baltimore, Secretary.

American Association of Pathologists and Bacteriologists, Boston, March 29-30. Dr. H. T. Karsner, Lakeside Hospital, Cleveland, Secretary.

American Association of Physicians, Atlantic City, May 1-3. Dr. Thomas McCrae, 1929 Spruce Street, Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, Atlantic City, May 10-12. Dr. W. H. Haskin, 40 E. 41st St., New York, Sec'y.

American Society for Clinical Investigation, Atlantic City, April 30. Dr. James H. Means, 15 Chestnut Street, Boston, Secretary.

Georgia, Medical Associaton of, Savannah, May 2-4. Dr. Allen H. Bunce, Healey Building, Atlanta, Secretary.

Iowa State Medical Society, Ottumwa, May 9-11. Dr. T. B. Throckmorton, Bankers Trust Building, Des Moines, Secretary.

Kansas Medical Society, Kansas City, May 2-4. Dr. J. F. Hassig, 800 Minnesota Avenue, Kansas City, Secretary.

Louisiana State Medical Society, New Orleans, April 10-12. Dr. P. T. Talbot, 1551 Canal Street, New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 24-26, Dr. J. A. Chatard, 1211 Cathedral Street, Baltimore.

Mississippi State Medical Association, Vicksburg, May 8-9. Dr. T. M. Dye, Clarksdale, Secretary.

Missouri State Medical Association, Joplin, May 9-11. Dr. E. J. Goodwin, 3529 Pine Street, St. Louis, Secretary.

North Carolina, Medical Society of the State of, Asheville, April 17-19. Dr. L. B. McBrayer, Sanatorium, Secretary.

Ohio State Medical Association, Dayton, May 1-3. Mr. D. K. Martin, 131 East State Street, Columbus, Secretary.

South Carolina Medical Association, Charleston, April 17-19. Dr. Edgar A. Himes, Seneca, Secretary.

Tennessee State Medical Association, Nashville, April 10-12. Dr. Larkin Smith, 154 Eighth Avenue, N., Nashville.

Texas, State Medical Association of, Fort Worth, May 8-10. Dr. Holman Taylor, 207½ W. 11th Street, Fort Worth, Secretary.

Western Electro-Therapeutic Association, Kansas City, Mo., April 19-20. Dr. Charles Wood Fassett, 115 E. 31st Street, Kansas City, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

February, 1923, **25**, No. 2

*Influence of Growth on Basal Metabolism of Children. G. B. Fleming, Glasgow, Scotland.—p. 85.
*Neuropsychiatric Sequelae of Acute Epidemic Encephalitis in Children. F. G. Ebaugh, Philadelphia.—p. 89.
*Acute Hemorrhagic Encephalitis: Report of Case Following Scarlet Fever. J. A. Toomey, L. H. Dembo, and G. McConnell, Cleveland. —p. 98.
*Intraperitoneal Transfusion with Citrated Blood. D. M. Siperstein, Minneapolis and J. M. Sansby, St. Paul.—p. 107.
*Congenital Malaria: Report of Case in Colorado. R. P. Forbes, Denver. —p. 130.
*Excretion of Foreign Protein in Human Milk. H. C. Stuart, Boston. —p. 135.
*Oxygen Therapy in Premature Babies with Anoxemia. H. Bakwin, New York.—p. 157.
*Toxemia of Severe Superficial Burns in Children. B. Robertson, G. Boyd, Toronto, Canada.—p. 163.
Review of Literature on Blood and Blood Diseases of Infants and Children for Last Four Years (1918-1921). L. W. Hill, Boston.—p. 168.

Influence of Growth on Basal Metabolism of Children.—Evidence is presented by Fleming in favor of the suggestion that the high basal metabolism of the growing child may to some extent be accounted for by the amount of energy expended in the manufacture of new tissue.

Neuropsychiatric Sequelae of Acute Epidemic Encephalitis in Children.—In seventeen cases of postencephalitis disturbances of a neuropsychiatric type, analyzed by Ebaugh, the psychiatric sequelae consisted of: (1) total change in character and disposition with characteristic hyperkinetic states, leading to behavior oddities consisting of emotional lability, sexual precocity, general incorrigibility, etc.; (2) insomnia with nocturnal agitation; (3) affective disorder of a depressive type; (4) hysterical reactions; (5) tics, fears, and (6) mental deficiency. Neurologic sequelae consisted of headaches, dizziness, diplopia, drowsiness, asthenia and oversalivation. Disturbances in motility, especially choreiform movements, were present. These disturbances appear to be related to the mental state. Visual disturbance and facial weakness also occurred as residuals. Evidence of endocrine change was noted in one case. Ebaugh suggests that the prognosis should be guarded; but pessimism should be avoided. Fifty per cent. of these patients are well or improving. There is no specific treatment for these conditions. Children should be sent to psychopathic wards for observation. Spinal drainage was effectual in several cases. These children do not react to discipline.

Acute Hemorrhagic Encephalitis Following Scarlet Fever.—The hemorrhages found in the brain, and the character of the onset and symptoms of the case reported by Toomey et al. conform to the description of the Strümpell-Leichtenstern type. The brain symptoms appeared just three weeks after the onset of the scarlet fever.

Intraperitoneal Transfusion with Citrated Blood.—The intraperitoneal route for blood transfusions is proposed by Siperstein and Sansby as a therapeutic method of merit, one which will overcome many of the objections to other routes of conveying blood to a child. The intraperitoneal transfusion of freshly citrated blood acts as a true transfusion and not as the absorption of a nutrient material. The work on which the method is based was done on rabbits.

Case of Congenital Malaria.—The case reported by Forbes owes its chief interest to the fact that the anopheles mosquito can be excluded as the source of infection, and that intra-uterine infection, therefore, does occur. The child was 7 weeks old when the first attack occurred. The patient had six febrile attacks at seventy-two hour intervals, before the periodicity was fully appreciated. The mother gave a history of an unusually severe quartan infection in Greece, seven years before, but asserted that she became free from all symptoms three months after coming to the United States in 1916. Quinin hydrochlorid, 2 grains every four hours, was begun and continued for four days; then it was given three times daily for four days, then three times on each of two days of each week for two months. Twenty days after quinin therapy was begun, the spleen could not be palpated. The baby had gained 26 ounces in fourteen days. At 6 months, the baby weighed 16 pounds, and had been free from any symptoms of malaria since treatment was begun.

Excretion of Foreign Protein in Human Milk.—Stuart cites experiments which he believes warrant the conclusion that egg-white protein is not demonstrable in the breast milk of mothers by any of the methods at present at our command. He does not suggest that such protein may not be present in infinitely small amounts, but knowing what small traces of egg-white will sensitize guinea-pigs, he feels that the conclusion is warranted that infants must be extremely sensitive to be affected by the amounts which they receive from this source. The explanation, therefore, of the frequent finding of these positive reactions in exclusively breast fed infants has not as yet been given, and the problem calls for further investigation. Stuart's results, however, fail to suggest that breast milk is a medium for the transmission of antigen.

Oxygen Therapy in Premature Babies with Anoxemia.—Two prematurely born babies with marked anoxemia, as indicated by the cyanosis and the increase in the oxygen unsaturation of the venous blood, were treated with oxygen inhalations. In both instances the cyanosis disappeared and the saturation of the venous blood rose to normal. The oxygen was given through a rubber tube inserted into the mouth.

Treatment of Toxemia of Burns in Children by Exsanguination-Transfusion.—In casting about for some means of relieving the toxemia incident to burns, the operation of "exsanguination-transfusion" was devised by Robertson and Boyd. The operation consists in the initial withdrawal of blood from the patient's longitudinal sinus or femoral vein until the limit of safety is reached. The transfusion is then commenced in an elbow vein. Withdrawal of the patient's blood and injection of fresh blood are then carried on simultaneously until the amount withdrawn is slightly less than the amount available for transfusion. The withdrawal is then discontinued and the remainder of available blood injected. The amount of blood withdrawn has ranged from 200 c.c. in an infant, up to 500 c.c. in a child 3 years of age. The results have been very encouraging. In ten cases of burns of the type described (i. e., with convulsions), two children received blood transfusion and eight were subjected to exsanguination-transfusion. Three of the latter died from burn toxemia. In the other seven cases, the burn toxemia was relieved.

American Journal of Hygiene, Baltimore

January Supplement, 1923, **3**

Analysis of Malaria Epidemiology. A. J. Lotka, Baltimore.
I. General Part.—pp. 1 and 38.
III. Numerical Part.—p. 55.
IV. Incubation Lag. F. R. Sharpe and A. J. Lotka, Baltimore.—p. 96.
V. Summary. A. J. Lotka, Baltimore.—p. 113.

American Journal of Medical Sciences, Philadelphia

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*Effects of Acute and Chronic Pneumothorax. J. L. Yates, Milwaukee. —p. 1.
*Aneurysm of Hepatic Artery. J. Friedenwald, Baltimore, and K. H. Tannenbaum, Chicago.—p. 11.
*Fibrillation of Auricle Returned to Normal Rhythm. L. F. Bishop, New York.—p. 29.
*Case of Heart Block and Auricular Fibrillation with Postmortem Specimen; Etiology of Fibrillation. S. Neuhof, New York.—p. 34.
*Arsenical Treatment of Chronic Infectious Endocarditis. J. A. Capps, Chicago.—p. 40.
*Fate of Arsenic After Intravenous or Intrathecal Injection. R. D. Rudolf and F. M. R. Bulmer, Toronto.—p. 47.
Pneumothorax in Tuberculosis. J. J. Singer, St. Louis.—p. 54.
Surgical Neuroses of Thyroid. J. Rogers, New York.—p. 66.
*Influence of Oliguria on Nitrogen Retention in Blood. O. H. P. Pepper, Philadelphia.—p. 81.
*Persistent Leukocytosis in Early Stages of Thrombo-Angiitis Obliterans. H. M. Thomas, Jr., Baltimore.—p. 86.

*Injury of Spinal Cord in Breech Extraction as Important Cause of Fetal Death and Paraplegia in Childhood. B. Crothers, Boston.—p. 94.

Visceral Adhesions and Bands: Normal Incidence (Second Paper). J. Bryant, Boston.—p. 111.

*Is Stomach Focus of Infection? N. Kopeloff, New York.—p. 120.

Effects of Acute and Chronic Pneumothorax.—On the basis of personal clinical experience, Yates regards an acute pneumothorax as being dangerous in so far as it interferes with the pulmonary circulation. The extent of the danger is determined by the integrity of the circulation, chiefly by the latent energy of the myocardium. Since reserve myocardial energy cannot be estimated accurately and is quite essential to life during a period of stress, open thoracotomy should be performed with some form of differential pressure. Thus alone may the degree of pulmonary deflation required for the intrathoracic operation be permitted to develop gradually, be controlled so as not to become excessive and allowed to be as transient as possible. The operation is incomplete until full pulmonary inflation is both obtained and maintained. The latter is possible only when suitable one way primary drainage is used. Gas-oxygen positive pressure analgesia as developed by Gwathmey is simple, safe and satisfactory, and, in the absence of a negative pressure cabinet is the best method now available. Chronic pneumothorax, as well as chronic pulmonary compression by the pleuritic effusions inevitable after thoracotomy, must be avoided if surgeons would assure to patients the best chances for rapid, comfortable and complete recovery. Experiment data are given.

Aneurysm of Hepatic Artery.—Friedenwald and Tannenbaum add one case to the sixty-five recorded in the literature. On account of the age of the patient, his loss of flesh, absence of pain, jaundice, blood in the stools, diminution in pancreatic ferments, and the roentgen-ray findings, the diagnosis was made of carcinoma of the pancreas, though the possibility of a stone lodged in the ampulla could not be ruled out entirely. While on the commode, but before his bowels had moved, the patient had a sudden fainting attack. He lost consciousness and his pulse became imperceptible. This was associated with a very severe pain in the right hypochondrium just to the right of the epigastrium. Half an hour after the collapse the patient had a profuse bowel movement, but there were no evidence of blood clots or hemorrhage. Following this there was a second partial collapse, which was again relieved by the administration of camphorated oil. The attacks remained unexplained, except the possibility of an internal hemorrhage. Two days later he suddenly uttered a cry, became pulseless and died. The diagnosis of hemorrhage was made, the cause of which was not ascertained until the necropsy disclosed an aneurysm of the hepatic artery which had perforated. The symptoms most frequently observed in aneurysm of the hepatic artery are pain, hemorrhage, icterus, enlargement of the liver, fever, fluctuating tumor in the region of the gallbladder, marked anemia, emaciation, together with attacks of syncope, dizziness, headaches, weakness and indigestion. All of these symptoms are rarely present in any individual case and ordinarily there are but few symptoms. In many instances the patient dies after a single attack of pain followed by hemorrhage without having had any previous symptoms whatever. Ligation of the hepatic artery is the only rational methods of treatment.

Fibrillation of Auricle Returned to Normal Rhythm.—Four cases are cited by Bishop which illustrate the return to normal rhythm in hearts which have been the seat of fibrillation of the auricle but were later normal in their auricular function. One example is that of a man with extremely advanced circulatory disease, which is shown by an enormous enlargement of the heart, the maintenance of a terrific blood pressure, the recurrence at various times of all the cardiac symptoms of heart failure, namely, dyspnea, edema, congestion of the lungs, liver and kidneys, and occasionally fibrillation of the auricle. This man, nevertheless, now presents a fair appearance of health and a regular heart as the result of being put on a strict regimen. The only specific treatment he has been given for his fibrillation is digitalis. His normal rhythm is, therefore, a part of the natural history of the ups and downs of the auricle. Another illustration of auricular fibrillation of an entirely different character is that of a man who developed cardiac disease as a result of long standing, continued nervous strain and overwork. He had symptoms of angina pectoris. At the time of his examination he had auricular fibrillation. His heart is now regular as a result of a strict regimen.

Heart Block and Auricular Fibrillation.—The chief pathologic changes found in the heart in this case, which Neuhof believes were undoubtedly the final cause of the cardiac disturbance, were found in the coronaries, in the artery of the auriculoventricular node (the node of Tawara) and in the musculature surrounding the node. The coronary artery was thickened and sclerosed, although still patulous. The artery supplying the auriculoventricular node (the beginning of the auriculoventricular conduction system, the normal conveyer of impulses from auricle to ventricle) was completely calcified. Surrounding the artery (and probably as the result of its calcification) was a distinct zone of degenerated musculature, which undoubtedly included the node, either in whole or in part. Neuhof is convinced that the calcifying process in the coronary artery, and particularly in the artery of the node, had been going on for many years, yet the patient at the time of death was 80 years old and had lived in cardiac comfort until sudden heart failure supervened; in all probability this resulted from final complete closure of the calcified artery supplying that node. This case is another illustration of the fact that the slow process of intracardiac arterial disease may never at any time sharply interfere with the factor of safety of the heart, and that ample time had probably been given for the establishment of coronary anastomosis; for, contrary to older teachings, it is now known that the coronaries are not end arteries and that many deeply situated anastomoses exist.

Arsenical Treatment of Chronic Infectious Endocarditis.—During the past twelve years Capps has treated all of his cases of chronic infectious endocarditis with daily injections of sodium cacodylate (usually intravenously), continued over a period varying from seven weeks to four months. In many of these patients he failed to find bacteria in blood cultures, although the other clinical findings were sufficiently characteristic for making the diagnosis. Eight cases were proved by blood cultures. Two of these patients died, and six survive. The duration of the disease in the fatal cases was six and thirteen months, respectively. The observation of the six surviving cases extends over periods of from eleven years and six months, to three months. Four patients have remained in good health for two years and more may be reasonably classified as recoveries. The only specific therapy attempted was the prolonged use of sodium cacodylate in daily doses of from 1 to 4 grains. The drug was pushed until a strong garlic odor was expelled with the breath. Capps feels that the preparations sold on the market in ampoule form are not very dependable, so that it is advisable to make a fresh preparation every few days of a reliable drug. No untoward effects were observed in any case. If the bowels became loose the dose was decreased for two or three days. Rest in bed was insisted on during the period of treatment. The results of blood cultures were of especial interest. *Streptococcus viridans* was the organism found in all cases. All the healed cases showed disappearance of bacteria from the blood during recovery.

Fate of Arsenic After Intrathecal and Intravenous Injection.—Rudolf and Bulmer assert that when arsenic is injected intravenously little, if any, of it reaches the central nerve tissues. When it is given in therapeutic doses intrathecally none of it can be detected in the spinal cord.

Influence of Oliguria on Nitrogen Retention in Blood.—The influence which marked reduction in the quantity of urine may have on the excretion of nitrogen, and so indirectly on the level of nitrogen in the blood, does not, in Pepper's opinion, seem to receive adequate recognition. The principle is well known, but it has not been sufficiently applied, and certain points which it seems to make clear have, therefore, been left in confusion and uncertainty. In nephritis, for example, there is often a decrease in urinary output, a failure to excrete sodium chlorid and a moderate rise in the level of the various fractions of the noncoagulable protein of the blood. In such cases it is frequently assumed that there is

impairment of the urea-excreting function of the kidney, as well as interference with the elimination of water and salt. Some even dignify these cases with the name "mixed nephritis." When the evidence is examined, however, one cannot help being impressed by the fact that the nitrogen retention may in some instances be the result solely, or in large part, of interference with water elimination; and that the urea excreting function of the kidney may be entirely unimpaired. If this view is accepted, a number of apparently contradictory observations become harmonized. In the treatment of nephritis an appreciation of these principles is important, for they supply a basis for understanding what can be expected of the kidneys in a given condition. They emphasize the importance of maintaining polyuria when the concentration ability is diminished and of decreasing, if possible, the urea production to an amount which the concentration maximum and the amount of urine, indicate that the patient can dispose of. Little or nothing can be done therapeutically toward raising the concentration ability of the kidneys but, by avoiding passive congestion and body dehydration, it is possible to make sure that the kidneys shall have every opportunity to excrete water; and by reducing the protein of the diet and by avoiding tissue destruction as far as possible, the demands placed on the nitrogen-excreting function of the kidney can be lowered and so one factor is avoided which undoubtedly favors nitrogen retention in the body.

Persistent Leukocytosis in Thrombo-Angiitis Obliterans.—The case described by Thomas is believed to be one of thrombo-angiitis of the arteries and veins supplying both lower extremities. The patient is a full blooded Jew, born in the United States; his parents were citizens of Austria-Hungary. He has smoked cigarets to excess for many years. After a sudden attack, in 1918, of auricular fibrillation (which subsided) he was well until April, 1921, when he first became troubled with severe pains in the lower extremities on walking. It was then found that he had a white blood count of 22,000. The pain in the legs and numbness of the left foot increased during the next seven months and the leukocytosis persisted. The rather widespread distribution of the vascular disorder with a comparatively low grade of cyanosis without rapid blanching on change of position of the leg clouded the exact diagnosis. There was evident obstruction to the arterial flow in the vessels of both lower extremities. Whether this is or is not due to true thrombo-angiitis obliterans, the subsequent course of the disease alone can decide. The existence of a well marked and persistent leukocytosis is emphasized. It would seem probable that a leukocytosis may be found to occur frequently in the early stages of thrombo-angiitis obliterans; if this is verified the fact would lend weight to Buerger's contention that the process is infectious in nature.

Injury of Spinal Cord Cause of Fetal Death.—Five cases are reported in which crippling depended on injuries to the spinal cord apparently caused by breech extraction. In making the diagnosis, pathologic, clinical and physiologic facts are considered. Four of these cases showed conclusive evidence of practically complete transection. One child showed evidence of an incomplete lesion.

Is the Stomach a Focus of Infection?—The study made by Kopeloff showed that the bacterial content of the stomach is influenced by the saliva; hence it may be inferred that the stomach is not acting as a focus of infection but merely as a receptacle for the bacteria poured into it. This is in agreement with the bacteriologic investigations of others to the effect that gastric acidity is sufficient to prevent bacterial development.

American Journal of Obstetrics and Gynecology, St. Louis

January, 1923, 5, No. 1

*Microscopic as Compared with Clinical Diagnosis of Malignant Uterine Neoplasm. C. C. Norris, Philadelphia.—p. 1.
*Treatment of Cystocele, Rectocele and Uterine Prolapse. R. T. Frank, Denver.—p. 8.
*Blood Sugar During Pregnancy and Puerperium. W. N. Rowley, Rochester, Minn.—p. 23.
*Sugar Test in Pregnancy. W. F. Welz and A. E. Van Nest, Detroit. —p. 33.
Pathology of Uterine Bleeding in 100 Analyzed Cases. H. Grad, New York.—p. 37.
Hemorrhagic Lesions of Placenta and Their Relation to White Infarct Formation. F. P. McNalley and W. J. Dieckmann, St. Louis.—p. 55.
*Blood in Normal Pregnancy. O. S. Krebs and A. P. Briggs, St. Louis. —p. 67.
Renal Colic Associated with Urethral Conditions in Women. E. MacD. Stanton, Schenectady, N. Y.—p. 72.
*Bacteriology of Fatal Systemic Infections Following Miscarriage or Abortion. W. B. Moody, Chicago.—p. 78.
*Repeated Dystocia from Fetal Anomaly in Successive Pregnancies. A. L. McDonald, Duluth, Minn.—p. 82.
"Once a Cesarean Section, Always A Cesarean Section," An Untruth. J. P. Greenhill, Chicago.—p. 86.

Diagnosis of Malignant Uterine Neoplasm.—In Norris' series of 391 cases of malignant tumors of the uterus, the clinical diagnosis was positive and correct in 272 cases (69.3 per cent.); the true condition was suspected in an additional fifty-nine cases (15 per cent.); in fifteen cases (3.8 per cent.) the clinical diagnosis was malignant tumor, but the type of neoplasm was not recognized, and in forty-five cases (11.5 per cent.) the condition was clinically regarded as benign and its true character determined only on histologic examination.

Treatment of Cystocele, Rectocele and Uterine Prolapse.—In the repair of a cystocele, the principle involved in the operation done by Frank is based on separation of the descended bladder from the uterine cervix, repair of the pubocervical fascia in the median line, and suture of this structure high up to the cervico-uterine junction so as to reestablish a tense continuous bladder shelf. For repair of a high rectocele, the operation consists in exposure of the anterior rectal was high up, opening of Douglas' cul de sac, obliteration of this pouch by circular suture and repair of the torn rectal fascia. This repair is usually combined with repair of low rectocele and torn perineal body. To repair a low rectocele and lacerated perineum, Frank makes an exposure of the anterior rectal wall, separates the rectum laterally from adjacent structures, and approximates the levator edges and triangular ligament en masse.

Blood Sugar During Pregnancy.—The average range for blood sugar concentration in normal pregnant women is stated by Rowley to be from 0.09 to 0.11 per cent., the same as that found in nonpregnant women. The average value found by him in fifty-three observations of the blood sugar concentration during pregnancy was 0.11 per cent. The average value in thirty-two observations of the sugar concentration of fetal blood taken from the umbilical cord immediately after delivery was 0.09 per cent. The average value for twenty-two observations of the blood sugar concentration on the second day postpartum was 0.14 per cent. Placental interchange of glucose, in Rowley's opinion, is undoubtedly dependent on the higher concentration of blood sugar in the mother. The influence of muscular exertion during labor is not a factor in postpartum hyperglycemia. Anesthesia with ether is a contributing but not a determining factor in producing a rise in the sugar concentration of the cord blood. Asphyxia produces a more marked rise than anesthesia with ether. Involution of the uterus cannot be shown to be the primary factor in producing postpartum hyperglycemia. The general physiologic change associated with involution may be a factor in producing postpartum hyperglycemia. In certain types of toxemia there is an increase in the blood sugar concentration.

Sugar Test in Pregnancy.—With pregnant women an alimentary administration of even 100 gm. of grape sugar leads to glycosuria with blood sugar under 0.19 per cent. which means that the spontaneous and artificial glycosuria of pregnancy occurs without an important increase of blood sugar content. Hence, this renal glycosuria of early pregnancy may be used to diagnose pregnancy during the first trimester. This artificial renal glycosuria is present constantly in pregnancy only during the first three months, when other signs of pregnancy are inconclusive. After the twelfth week of pregnancy, it rapidly disappears, and can be evoked in the later months only in a definite percentage of cases (about 30 per cent.). Welz and Van Nest have used this method of diagnosis of early pregnancy in seventy-one cases. In the first twenty-seven cases 100 gm. of glucose were used. As this was not entirely satisfactory, a change to 150 gm was

made. In the first series of twenty-seven tests using 100 gm. glucose, seven women were at periods ranging from fourteen to twenty-four weeks pregnant. As these were all advanced too far in pregnancy to diagnose by the sugar test, they may be ruled out entirely. Only one of these seven women gave a positive result, at fourteen weeks; two had excessive hyperglycemia, from 307 to 410 mg. per hundred cubic centimeters of blood which was not considered as diagnostic of pregnancy. Of the other eighteen, which were under the twelve weeks' period, fifteen agreed with the final diagnosis and three disagreed. In this series the urine was examined only at forty-five minutes and one hour. In the second series of forty-four cases in which 150 gm. of glucose was used, only two cases of those within the twelve weeks of pregnancy disagreed. These failed to give a positive sugar test, though they later proved to be pregnant. In no case was there a positive glycosuria, where there was no pregnancy, though blood sugar estimations were as high as 216.2 mg. per hundred cubic centimeters of blood.

Blood in Normal Pregnancy.—The results of the study of blood made by Krebs and Briggs with special reference to the inorganic constituents shows a great constancy of all the elements in normal pregnancy, regardless of the period of gestation, with one exception, namely, that in the last weeks of pregnancy the calcium content was lowered slightly.

Bacteriology of Fatal Systemic Infections Following Abortion.—From a study made by Moody of the bacteria found in women dying from sepsis following abortion, it appears that the hemolytic streptococcus is more often found than other organisms, but that such bacteria as *Bacillus coli* and staphylococci are not infrequently present. The possibility is suggested that the hemolytic streptococci are present in the lochia but that some outside influence, such as trauma from instrumentation, douches, and the like, is necessary to bring about generalized infection.

Repeated Dystocia from Fetal Anomaly.—The two cases reported by McDonald concerned the same mother in two pregnancies. They present four types of anomaly: (1) polydactylism and syndactylism; (2) situs transversus; (3) some anomaly of the urinary tract with hypertrophy of the bladder wall and patent urachus; (4) ascites.

American Journal of Tropical Medicine, Baltimore

January, 1923, **3**, No. 1

Prevalence of Yellow Fever Mosquito, Aedes Calopus, in Southern Part of Peru. L. H. Dunn, Ovid, New York.—p. 1.
Stegomyia Indices and Their Value in Yellow Fever Control. M. E. Connor and W. M. Monroe, New York.—p. 9.
Limit of Usefulness of Fish in Larvae (Aedes Calopus) Control. W. M. Monroe, New York.—p. 21.
*Hepatic Lesions of Experimental Yellow Fever. T. G. Perrin, Mexico.—p. 27.
*Transmission of Rocky Mountain Spotted Fever by Rabbit Tick Haemaphysalis Leporispalustris Packard. R. R. Parker, Hamilton, Montana.—p. 39.
Biology of Leishmania Tropica. A. M. Pedroso, Sao Paulo, Brazil.—p. 47.
*Presence of Yeast-Like Bodies in Blood of Human Beings. M. S. Fleisher and M. Wachowiak, St. Louis.—p. 59.

Hepatic Lesions of Experimental Yellow Fever.—In the livers of guinea-pigs which died after injection of virulent cultures of *Leptospira icteroides* Perrin found (apart from intense congestive and hemorrhagic phenomena, fibrous reactions of the stroma and vascular walls, etc.) two principal types of lesions: fatty degeneration or dystrophic steatosis, acute and profuse; and insular necrosis, analogous to that found in human livers from fatal cases of yellow fever. The insular necrosis presents characteristics analogous to those observed in experimental infectious jaundice in the guinea-pig.

Rocky Mountain Spotted Fever Transmitted by Rabbit Tick.—The data involving the rabbit tick, which Parker presents, indicate that in seeking for the factors responsible for the maintenance of Rocky Mountain spotted fever in nature, rabbits must be reckoned as one of the possibilities. It seems probable that Rocky Mountain spotted fever can be maintained among wild rabbits by means of the rabbit tick without the presence of the wood-tick, *Dermacentor venustus* Banks. It is furthermore probable that this fever may exist in the rabbit population in localities in which human cases have not been known and also that it may be far more generally distributed among the rodents in the northwestern states, especially in rabbits, than the known distribution of human cases would indicate.

Yeastlike Bodies in Blood of Human Beings.—Yeastlike organisms were found by Fleisher and Wachowiak in the blood of three persons suffering with chronic diarrhea. These organisms fed to animals produced diarrhea and death, and they could usually be recovered from both the intestinal mucosa and the heart's blood at necropsy, thus confirming their etiologic relationship to the disease in human beings. The finding of a yeastlike organism in one case of sprue suggests to the authors that further studies must be made in this disease.

Archives of Ophthalmology, New Rochelle, N. Y.

January, 1923, **52**, No. 1

Should We Still Consider Ocular Tension as Being Due to Aqueous Humor? Ocular Tension After Puncture of Anterior Chamber or Pressure on Eyeball. A. P. Magitot, Paris.—p. 1.
Isolated Paralysis of Inferior Oblique. S. B. Marlow, Syracuse, N. Y.—p. 12.
Factors Influencing Choice of Method for Cataract Extraction. D. Smith, Bridgeport, Conn.—p. 25.
Paralysis of Divergence; Report of Three Cases Due to Epidemic Encephalitis. J. H. Dunnington, New York.—p. 39.
Bitemporal Contraction of Visual Fields in Pregnancy. C. E. Finlay, Havana, Cuba.—p. 50.
Abiotrophy: Ophthalmoplegia Externa. A. W. Stirling, Atlanta, Ga.—p. 56.
Law of Rotation of Astigmatic Axis. A. W. Stirling, Atlanta, Ga.—p. 62.
Metastatic Thyroid Tumor in Orbit. A. Knapp, New York.—p. 68.
Basal Cell Carcinoma of Orbit and Ethmoid: Operation; Radium Application. J. Green, Jr., St. Louis.—p. 75.
Case of Epibulbar Melanotic Sarcoma, Occurring Sixteen Years After an Injury. J. M. Ball and H. D. Lamb, St. Louis.—p. 80.

Boston Medical and Surgical Journal

Feb. 8, 1923, **188**, No. 6

Medical Supervision at Antioch College. G. H. Bigelow, New York.—p. 157.
Young "Cardiac Cripple," with Especial Reference to ex-Soldiers. F. H. McCrudden, Boston.—p. 164.
*Plea for Testing Selected Single Specimens of Urine, with Special Regard to Diabetes. H. Gray, Boston.—p. 168.

Testing Single Specimens of Urine.—Albumin, casts and sugar, Gray says, are overlooked frequently when the physician examines a random sample of urine and, furthermore, even in the twenty-four hour amount. Hence, the best method alike for early diagnosis, for treatment, and for the doctor's periodic study, is to test every single specimen throughout twenty-four hours. Intermittent glycosuria often occurs at unexpected hours. Casts also are far more constantly found in fresh single specimens than in twenty-four hours specimens, particularly in diabetic urines. When it is impracticable for the physician to study every sample, it is desirable to investigate a specimen one hour after a hearty meal.

California State Journal of Medicine, San Francisco

January, 1923, **21**, No. 1

*Resection of Distal End of Ulna for Shortening Radius Following Fracture. C. Hoag, San Francisco.—p. 1.
*Syphilitic Headache. I. C. Sutton, Anaheim.—p. 3.
Uterine Myomas and Their Treatment. W. H. Gilbert, Los Angeles.—p. 5.
Posterior Vaginal Drainage with Description of New Instrument Used as Vaginal Pelvic Guide. F. R. Girard, San Francisco.—p. 9.
Pirquet System and American Requirements. W. E. Carter, Los Angeles.—p. 12.
Use of Pupilloscope in Neurology. H. G. Mehrtens, and O. Barkan, San Francisco.—p. 13.
*Tumors of Breast Arising During Pregnancy and Lactation. A. R. Kilgore, San Francisco.—p. 14.
Adenoma of Thyroid. J. H. Shephard, San Jose, Calif.—p. 16.
Posttonsillectomy Pulmonary Abscess. M. E. Botsford, San Francisco.—p. 19.
*Treatment of Constipation. R. M. Clarke, Santa Barbara.—p. 22.
Educational Standards in Physiotherapy. R. L. Wilbur, Yosemite Valley.—p. 24.
Constitutional Psychopathic Inferiority. W. House, Portland, Ore.—p. 26.
Brisement Forcé, and the For and After Treatment. A. Gottlieb, Los Angeles.—p. 29.
Treatment of Painful Affections Involving Cervical Vertebrae. H. L. Langnecker, San Francisco.—p. 31.

Resection of Distal End of Ulna for Shortening Radius Following Fracture.—In cases of fracture of the radius in

which either the shaft of the radius had been shortened by loss of bone or an overlapping of the fragments, or those cases in which the epiphysis had been impacted or comminuted, causing a definite protrusion of the ulna into the wrist joint sufficient to limit ulnar flexion of the hand with or without subluxation of the ulnar head, Hoag has resected the distal end of the ulna. Whether a subperiosteal resection is done or the periosteum is also excised seems immaterial, except from the standpoint of preserving the radio-ulnar ligaments and avoiding the formation of callus. Reformation of bone which limits motion seldom occurs, providing a full range of motion is maintained from the start to mold the callus. A satisfactory result depends on the observance of this point. Usually no splint or cast is necessary. The use of a sharp chisel, instead of a Gigli saw, is urged as being less damaging to the radio-ulnar attachments. The operative technic is simple; it does away with the need for immobilization; there is no possibility of nonunion and less opportunity for infection. Rotation of the forearm and lateral motion of the wrist are more completely restored. The restoration of strength and the cosmic results are generally better. Four cases are cited.

Syphilitic Headache.—Out of 200 consecutive cases of syphilis with early cutaneous lesions seen by Sutton, headache was the symptom most complained of in eight instances and was present in varying degree in forty-two cases. The pain may vary from a dull throbbing ache in mild cases to severe flashes, accompanied with fever, giddiness, a slowing of the pulse rate, and even convulsions. Syphilitic cephalalgia is consistently worse at night. As a rule, the pains start in the occipital region and spread up over the vertex in lightning-like flashes, but do not follow the course of any certain nerve. Often of vesperal onset, they may even waken the unfortunate patient from deep sleep, with the whole body aching "in concert." While occasionally a superficial tenderness over the skull may suggest a periostitis, or a dull ache may resemble that of any acute infection, all the headaches of early syphilis, Sutton says, should be regarded as being due to an early meningeal irritation, unless definitely proved otherwise. Head pain due to syphilis of the cranial and peripheral nerves was present only twice in Sutton's series of cases. He emphasizes that syphilis should be suspected in all instances in which head pain is a prominent and chronic symptom.

Tumors of Breast Arising During Pregnancy and Lactation.—This paper is a report of an interesting study made by Kilgore of the tumors of the breast arising in connection with functional activity of the organ. Of a total of 1,099 cancers, forty-nine, or 4.45 per cent., arose during breast activity. In lactation and pregnancy, cancer, galactocele, tuberculosis and adenoma comprise more than 90 per cent. of the tumors, in the order of frequency named. Ninety-three per cent. of the cancers arose after 30, while 68 per cent. of the benign tumors arose under this age. Twenty per cent. of all pregnancy and lactation cancers were first noted during the beginning four months of lactation. The number of cases of cancer per hundred thousand pregnant or lactating women increases markedly after the age group 35 to 39 over the number of cases of cancer per hundred thousand women not pregnant or lactating. Forty-five of the forty-nine patients with breast cancer were traced five years or more after operation, and of this number six were well when last heard from, i. e., 13 per cent. (unselected) proved to be five-year cures—not as high as the percentage of cures in unselected cases of breast cancer generally, but indicating, as cancer statistics go, a far from hopeless prognosis for malignant disease arising in connection with breast activity.

Treatment of Constipation.—Constipation is either spastic or atonic. Both conditions are the results of long continued irritations and inflammations; therefore, curing the irritation or inflammation will also cure the constipation, be it either spastic or atonic. As a producer of irritation to the colon, Clarke says, the cathartic habit easily takes first rank. Among cathartics, salts of all kinds, with their ever present osmotic action, are probably more injurious than all others. Each dose makes worse the malady it is intended to relieve, and convinces the patient the more strongly that nothing short of "dynamite" will do any good. The indiscriminate use of bran and other irritating foods is another great cause of constipation. Vaunted by health lectures and magazines, advertised by commercial food concerns, and many times by the doctor as well, it continues to be, when put into an already inflamed tract, irritating. Although producing bowel movement for a while, it only serves to deepen and increase the inflammation which is the basis of the patient's malady. The enema is nearly as bad as the cathartic. It washes away normal secretions and introduces a foreign substance to further irritate the bowel and rectum. The mental attitude is no small factor in the cause of constipation. The patient "thinks" he needs a cathartic and attempts to "beat nature to it" with a cathartic until he gets firmly fixed in his mind an idea that the bowels will not move of themselves. Unbalanced dietary is a cause of constipation. Reflex irritations, as a diseased gallbladder or appendix, an ulcer, or pelvic conditions are prolific causes of constipation. Irregular habits, and failure to promptly answer the call to evacuation, soon result in a loss of the "call" and eventually in inflammation of the pelvic loop, and should be named as causes of constipation. Unusual stress, or any strain that is beyond the ability of the patient to carry indefinitely, either physical or mental, is a great cause of constipation. The removal of bulk from the diet is the one great means of reducing irritation to the colon. The diet must be reduced to liquids of no residue and kept thus until bowel movement has been accomplished. After this the diet can be increased, gradually and carefully. Medicinal treatment is mainly of a negative character. All cathartics are stopped entirely, and the patient is impressed that they must not be taken again except in great emergency. Enemas, whether medicated or plain, are also stopped, as they are a source of irritation. Clarke gives an intestinal powder every three hours in the beginning. It not only provides bulk but it is nonirritating while the patient is on a nonresidue diet, and it is also very soothing and healing to the irritated mucosa and nerve endings. It should be reduced gradually as bulk is put back into the diet. The powder contains bismuth subnitrate, calcium carbonate and calcium phosphate, each 1 ounce, taken in one teaspoonful dose, every three hours, in water. An oil enema of cottonseed oil should be given every night at 8 or 9 o'clock. Heat to the abdomen is very essential. Fomentations should be given every three hours, each set lasting from fifteen to twenty minutes. Rest is of vital importance, especially to the exhausted patient. Exercise, instead of rest, is beneficial only to those patients suffering from dyschezia.

New Jersey Medical Society Journal, Orange

February, 1923, **20**, No. 2

Uterus and the Curet. A. S. Harden, Newark, N. J.—p. 37.
Treatment of Hypertension in Cardiorenal Disease. D. Riesman, Philadelphia.—p. 41.
Autosuggestion. T. R. Chambers, Jersey City, N. J.—p. 46.
Mental Abnormalities and Problem of Eugenics. A. Gordon, Philadelphia.—p. 47.
Interest of Medical Profession in Public School Hygiene. H. W. Haight, Highland Park, N. J.—p. 55.

New York Medical Journal and Medical Record

Feb. 7, 1923, **117**, No. 3

*Diagnostic and Therapeutic Importance of Some Typical Tender Bone Points. R. Bastianelli, Rome, Italy.—p. 125.
Bifurcation Treatment of Irreducible, Acquired or Congenital Hip Dislocations. A. Lorenz, Vienna.—p. 130.
Lorenz Bifurcation Operation. D. D. Ashley, New York.—p. 136.
Correction of Congenital Club Foot. E. H. Bradford, Boston.—p. 138.
Foot Strain in Golf. N. D. Mattison, New York.—p. 142.
Massage in Sprains, Dislocations and Fractures. P. Kouindjy, Paris, France.—p. 145.
Exercise in Acute Infectious Arthritis. S. W. Boorstein, New York.—p. 150.
Results of Exercise for Correction of Postural Defects. R. J. Cook, New Haven, Conn.—p. 155.
Contracted Achilles Tendon. A. Gottlieb, Los Angeles.—p. 157.
Diagnosis and Treatment of Minor Injuries to Lumbar Spine and Sarcoiliac Joints. M. B. Cooperman, Philadelphia.—p. 159.
Suppurative Arthritis. H. Cohen, New York.—p. 163.
One Hundred Cases of Weak Feet in Adults with Pedographic Findings. J. Grossmann, New York.—p. 164.

Diagnostic and Therapeutic Importance of Tender Bone Points.—A great number of persons, especially women, com-

plain of pain in various parts of the body, of which it is difficult to establish the seat and the nature, and consequently they are treated as suffering from nervousness, neuralgia, hysteria, or from material diseases of organs or parts of the body in the neighborhood of the pain, e. g., loose kidney, intestinal neuralgia, chronic appendicitis, arthritis, or periostitis. Bastianelli has paid a great deal of attention to the bones as the possible location of the pain. The treatment instituted, directed toward the affected bone, has been successful. It consisted of the injection of from 10 to 20 minims of phenol, 3:100 or 5:100, deeply on the bone exactly at the painful point. The injection must be repeated four or five times at different intervals according to the reaction. In the chronic cases, especially of the superior humeral, superior tibial, posterior lumbar, and rib and scapula points, the results have been extraordinary; less in the epicondyle and styloid pain and in the coccygodynia, perhaps because it is more difficult to inject them well. In the acute form, the reaction is more severe and the disease for the time being becomes worse.

U. S. Naval Medical Bulletin, Wahington, D. C.

January, 1923, **18**, No. 1

Study of Earth Sciences; Its Purpose and Its Interrelations with Medicine. T. W. Vaughan.—p. 1.
Psychometric Tests for Recruiting Stations. J. R. Poppen.—p. 14.
Problem of Malaria in Marines in Haiti. A. H. Allen.—p. 25.
Functions and Organization of Medical Corps Units Serving with Marine Corps in Field. S. N. Raynor.—p. 31.
Psychoneuroses and Their Treatment. W. O. Krohn.—p. 39.
*Use of Chaulmoogra Oil Derivatives in Leprosy. C. B. Van Gaasbeek.—p. 50.
Hygienic Laboratory of Republic of Haiti. R. M. Choisser.—p. 56.
Modeling Compound Impressions. H. E. Harvey.—p. 61.

Use of Chaulmoogra Oil Derivatives in Leprosy.—Thirty-seven patients in the leper colony on the island of St. Croix, Virgin Islands, were treated with the ethyl ester derivatives of the fatty acids of chaulmoogra oil. Gaasbeek and his associates gave 1 c.c. the first week intramuscularly into the buttocks; 2 c.c. for the next three weeks; 3 c.c. for the following six weeks, at which time the supply of the drug was exhausted and the treatment was discontinued until a new supply of the oil was received about five months later. The nasal smear was positive for *Bacillus leprae* in twenty-three of those who received the treatment. Under treatment the nasal smear became negative in every case. The effect on the nodules was remarkable. Although the nodules were not directly injected, they could be seen getting smaller weak by week. The effect on the macules was no less striking. The duration of the disease had no effect on the disappearance of the macules under treatment. On the leprous ulcerations the results were not so striking. The duration of the disease did not seem to have any effect on the healing of the ulcers. Healing seemed to depend rather on the duration of the ulcer and the extent of the anesthesia. In cases in which the ulcers were comparatively recent and the anesthesia slight, there was prompt healing when treatment was instituted. In cases in which the ulcers were of long standing and involved bone, and the anesthesia was total there was no change or, at the most, only slight improvement. The effect on disturbed sensation was marked. At the beginning of the treatment there was anesthesia, either slight, marked, or total, in thirty-five patients. In six patients the anesthesia cleared up entirely; in twenty there was improvement; while in the remaining nine there was no change. On the whole, more marked improvement was observed in patients having leprosy less than five years, although considerable improvement was found in those of from five to ten years' duration. Those that showed no improvement had had leprosy six, eight, thirteen, eighteen and twenty-five years, respectively. These observations have led the observers to conclude that the ethyl ester derivatives of chaulmoogra oil have a very definite place in the treatment of leprosy. It is believed that they will cure some cases, especially those of relatively short duration, and it is known that they will bring about improvement in a majority of patients to such an extent as to permit their parole. No harmful effects have been observed from its administration.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Feb. 3, 1923, **1**, No. 3240

Microbic Transmissible Autolysis. J. Bordet.—p. 175.
*Malignant Diseases of Breast. C. A. Morton.—p. 178.
Cataract Extraction Followed by Symptoms Suggestive of Sympathetic Ophthalmia. F. Fergus.—p. 182.
"Tetanism" in Meningitis. H. B. Shaw and C. D. Shapland.—p. 183.
Diaphragmatic Hernia of Entire Stomach. J. G. Andrew.—p. 184.
Hydatid Cysts of Liver. Associated with Gallstones and Empyema of Gallbladder and Pleura: Recovery. M. L. Ramsay and H. F. Vellacott.—p. 184.
Radiation of Pain in Lesions of Fallopian Tube. M. Marcus.—p. 185.
Case of Ritter's Disease (Dermatitis Exfoliativa Neonatorum). R. McD. Cairns.—p. 186.
Posthippocratic Schools of Medicine. R. O. Moon.—p. 187.

Malignant Diseases of Breast.—The records of 120 consecutive cases of ordinary glandular cancer of the breast, subjected to operation during the ten years preceding 1921, are analyzed by Morton, with reference to the proportion of cases with local recurrence. The late results as to local recurrence were traced in eighty of the 120 cases. Of the remaining forty cases, some patients died with distant metastases without local recurrence before the end of three years after the operation, others died also during this period of intercurrent disease, and in some cases the cause of death was unknown. Thirty-seven patients were free from recurrence three years or later after the operation, and forty-three had local recurrence. Of the thirty-seven, twenty-five had no recurrence five years or later after the operation. Recurrence has been most frequent in the pectoral region. There were twenty cases of supraclavicular recurrence. In no case has Morton ever encountered a recurrence in the downward direction, and he has never made a practice of any special clearance of the tissues in this direction. The special feature of the operation performed by him is the supraclavicular extension.

Lancet, London

Feb. 3, 1923, **1**, No. 5188

*Progressive and Malignant Endocarditis in Childhood. F. J. Poynton.—p. 215.
*Immediate Microscopic Diagnosis of Tumors at Time of Operation. E. H. Shaw.—p. 218.
*Causes of Death in Chronic Valvular Disease of Heart. J. Cowan and J. K. Rennie.—p. 223.
*Cardiac Rheumatism of Childhood. M. O. Raven.—p. 226.
Anthrax Infection by Shaving Brushes. F. A. Knott.—p. 227.
Case of Extra-Uterine Pregnancy. A. McMurray.—p. 228.
Case of Retroperitoneal Fibroma Arising from Anterior Common Ligament. W. H. Ogilvie.—p. 228.

Malignant Endocarditis in Childhood.—Malignant endocarditis in childhood, Poynton says, shows the same features as in the adult, though, as a rule, it is more rapid in its course. There are fever, sweating, anemia, purpura, Osler's spots, infarctions, optic neuritis and retinal hemorrhage, drowsiness, aneurysms, diarrhea, cerebral hemorrhage or embolism, hematuria, enlargement of the spleen, cardiac bruits, and a continual excited action of the heart. Poynton has seen in a child a femoral aneurysm as large as a cocoanut from an embolus in that vessel. This likeness to the adult cases is most significant when the close association with acute rheumatism is seen. Poynton holds that there is a rheumatic malignant endocarditis which may arise from the simple form or be primary in origin. Further, he believes that the mysterious cases of streptococcal origin in adults are either primary cardiac rheumatism of a malignant type, or, if not actually rheumatic, more closely allied to the rheumatic infection than any other. In other words, they are due to a strain of that group. Cases are cited as proof that a study of rheumatic heart disease is probably one of the best methods available at present for throwing light upon malignant endocarditis met with not only in childhood, but also in adult life.

Immediate Microscopic Diagnosis of Tumors.—Shaw describes in detail his method of cutting frozen sections of fresh tissues, a procedure which he first recommended for general use in 1910 but which he originated in 1899. Two alterations were made some years ago: (1) substitution of

the ethyl chlorid spray for the old ether apparatus—by this means a piece of tissue may be frozen on any flat piece of roughened glass, metal, or even wood; and (2) diluted instead of full strength stain, which acted too quickly and gave very dense pictures.

Causes of Death in Chronic Valvular Disease of Heart.—In the 100 cases of valvular disease found by Cowan and Rennie to be present on postmortem examination, nineteen cases were purely acute, while eighty-one cases were, in part at any rate, chronic. In all of these cases an antemortem diagnosis had been made. In thirty-nine of the eighty-one cases of chronic valvular disease an acute or subacute endocarditis was found to be also present. Paroxysmal tachycardia was present in twenty-one cases. In one case death ensued as the result of recurring attacks of paroxysmal tachycardia. In one case death ensued in a patient who had full heart block. Of these eighty-one cases of chronic valvular disease the cause of failure was in two cases unknown. In six cases death ensued from causes quite distinct from the cardiac disease. In eleven cases cardiac failure followed the activity of factors outside the heart. Of the other sixty-two cases, in forty-nine the heart itself seemed to be the prime factor in the failure, and in thirty-nine of these an acute endocarditis was present at death. The commonest cause of cardiac failure in chronic valvular disease seems thus to be an acute reinfection of the cardiac valves. Acute endocarditis is most common in rheumatic patients, and least common in syphilitic patients. Of fifty-eight cases of acute endocarditis, nineteen purely acute and thirty-nine associated with chronic lesions, thirty-two were rheumatic and only one syphilitic. One patient had suffered from both diseases. The immediate cause of death in cases of chronic valvular disease is varied. In some a general sepsis is present, in some embolic lesions in the organs occasion death, in some the valvular fault progresses beyond the point where compensation can be effected. But in probably the majority of cases the cause of death is muscular weakness from the associated myocarditis.

Cardiac Rheumatism of Childhood.—The treatment followed by Raven, in the main, consisted of recumbency, fresh air, and warmth. The most severely ill patients have been kept strictly recumbent against bed rests for from eight to fourteen months: the others have been allowed to get up little by little, as the symptoms subsided, beginning at a quarter of an hour a day and working up gradually to a full day before discharge; then they have always been sent back to the hospital or physician that sent them for further observation. Treatment by drugs, useful though they undoubtedly are—particularly salicylates, digitalis, and opium in appropriate cases—is regarded only as accessory to a general management on these lines.

Indian Medical Gazette, Calcutta

January, 1923, **58**, No. 1

Therapeutics of Antimony. R. N. Chopra.—p. 1.
Malaria Survey of Sawantwadi State. C. Strickland.—p. 7.
What Are the Departures from Health and Diseases Which Arise from Negligence, Ignorance and Self-Indulgence of Man? J. W. Cornwall.—p. 15.
Use of Nonmotile Strain of Bacillus Typhosus in Agglutination Reaction. G. P. Khan.—p. 18.
Spinal Analgesia. F. J. W. Porter.—p. 20.
Case of Homicidal Yellow Oleander Poisoning. S. Banerjea.—p. 20.
*Two Cases of Death from Hemorrhage into Pericardium. R. S. Townsend.—p. 21.
Cases of Kala-Azar. D. N. Roy.—p. 23.
*Case of Unusual Malpresentation. J. A. Rowland.—p. 24.

Death from Hemorrhage into Pericardium.—In one of the cases recorded by Townsend, there was actual rupture of the heart muscle, and in the other case, a small aneurysm in the first part of the aorta had ruptured. The rupture in the first case occurred at the point of entrance of the pulmonary artery into the right ventricle. No disease of the valves could be found, one minute patch of atheroma was present in the pulmonary artery about 1 inch from the tricuspid valves, otherwise the large vessels seemed healthy. All other organs of the body were healthy except the liver, which was enlarged and somewhat engorged.

Unusual Fetal Malpresentation.—Rowland relates the case of a pregnant woman whose abdomen was so large as to lead to a suspicion that the case might be one of twins. On making an examination per vaginam the head (vertex), hand and foot were found firmly impacted in the vagina, the head being between the hand and foot. It was found impossible to return any one of the presenting parts into the uterus. The possibility of interlocked twins was thought of, but no definite diagnosis could be arrived at. The head was perforated with great difficulty owing to the edematous condition of the vagina, and an arm was removed at the shoulder joint. Attempts made to bring down the leg, simultaneously pushing back the head into the uterus failed. When the head was severed from the thorax by cutting through the neck, it was possible to push the head into the uterus. A leg was pulled down and the body of a full-term child of normal size was extracted. On completion of delivery it was found that the woman had a sessile submucous fibroid tumor, the size of a large orange, situated in the upper segment of the uterus. The tumor was incompletely split in halves. Previous to this confinement the patient had had two normal deliveries.

Irish Journal of Medical Science, Dublin

January, 1923, **5**, No. 11

Principles of Therapeutics. T. G. Moorhead.—p. 485.
Unsatisfactory Appendicectomies. Wm. Doolin.—p. 495.
*Cases of Diabetes and Leukemia. J. W. Moore.—p. 507.

Cases of Diabetes and Leukemia.—Moore cites two cases, one of diabetes mellitus in a girl, aged 14 years, complicated in its final stages by xanthoma diabeticorum, and one of myelogenous leukemia in a boy, aged 11 years.

Medical Journal of Australia, Sydney

Jan. 6, 1923, **1**, No. 1

Dysentery: Bacillary and Amebic. E. M. Little.—p. 1.
Head Injuries of War. B. T. Edye.—p. 5.
Gas Gangrene in Military and Civil Practice. K. Inglis.—p. 7.
Ocular Syphilis. J. C. Douglas.—p. 9.
Tonsils Considered by a General Practitioner. G. P. O'Day.—p. 13.
*Case of Tuberculous Meningitis. W. E. George.—p. 14.

Acute Tuberculous Meningitis.—George relates the case of a boy, aged 12, who became suddenly ill, the chief symptom being headache. This and other symptoms led to a provisional diagnosis of enteric fever. The Widal test was negative. No bacilli were recovered from the feces, urine, or blood. On the thirteenth day, the patient had a sudden rigor. Four days later the leukocytes numbered 20,000, 90 per cent. being polymorphonuclear cells. He was becoming more drowsy. Within a week the diagnosis of meningitis was evident. The patient died about three weeks after the onset of his illness. At the postmortem examination, an old adhesive pleurisy of the whole of the upper lobe of the right lung was discovered; on section the same lobe was found to contain numerous caseous tuberculous nodules. Both cerebral hemispheres were greatly congested and the meninges in the vicinity of the pons varolii were hyperemic and swollen by a great deal of subjacent inflammatory exudate. This exudate was clear and showed increased lymphocytes; no organisms were isolated on culture. The case was interesting in view of the differential diagnosis and the persistent leukocytosis with polymorphonuclear cell increase in an acute condition, evidently tuberculous from the outset.

Quarterly Journal of Medicine, Oxford

January, 1923, No. 62

*Study of Orthostatic Albuminuria by Means of Graphic Records. J. W. Russell.—p. 73.
*Fractional Test Meal in Study of Disorders of Gastro-Intestinal Tract. (Analysis of 174 Verified Cases). D. Hunter.—p. 95.
Muscular Exercise, Lactic Acid, and the Supply and Utilization of Oxygen. A. V. Hill and H. Lupton.—p. 135.

Study of Orthostatic Albuminuria.—There appears to be a group of mild kidney lesions which, apart from subacute exacerbations, reveal themselves chiefly by the inability of the kidney to bear, without leakage of albumin, the circulatory disturbance brought about by the upright position. Russell believes that the orthostatic albuminurias belong to the same group, though at its mildest extremity. In none of the seven cases examined by him has the bed urine been always com-

pletely free from albumin. The later day cessation of the albuminuria, in the few cases in which it was observed, has also been variable in its occurrence. The cessation was not due to adaptation to the upright position acquired in the course of the day, but its explanation has yet to be found. It was evident, however, that there is a close association between the quantity of urine secreted and the amount of albumin contained. In general, the two curves are inverse in direction, but the albumin excursions are probably exaggerated by the assumption of the upright position. Profuse diuresis generally puts an end to the excretion of albumin, even in the standing position. When the urine is persistently and abnormally scanty, the two curves cease to show any relation to one another. In most of the cases examined there was a marked delay in the secretory response to the intake of a fixed quantity of fluid. In the more obviously nephritic cases, the albumin response to the upright position was not immediate, except during a subacute exacerbation. Russell noted that in the more definitely "orthostatic" cases, standing at once and invariably gave rise to albuminuria, except during a period of diuresis.

Fractional Test Meal in Study of Disorders of Gastro-Intestinal Tract.—In the course of an investigation extending over two years, the fractional method of gastric analysis was applied by Hunter to 270 patients. In 174 of these cases the diagnosis was considered proved. In fifteen cases of chronic ulcer of the duodenum, the fractional test meal findings were remarkably constant. Eighty-eight per cent. of cases showed curves considerably above the limits of normal. In every uncomplicated case there was copious secretion of transparent fluid and rapid emptying. In fifteen cases of chronic ulcer of the pyloric end of the stomach, the findings were less constant; 67 per cent. of cases showed curves above the limits of normal. The typical curve was one with a high resting fluid, a gradual climb to a high level, and a slight terminal drop. Emptying was delayed. In twenty cases of chronic ulcer of the body of the stomach there was no constant finding. In 50 per cent. of cases the curve remained within the limits of normal, while in 35 per cent. it rose above these limits. An observation of some importance is that in 38 per cent. of cases, where the ulcer was situated posteriorly, macroscopic blood appeared. In cases of hour-glass constriction of the stomach, and in a small group of cases with ulcer on the anterior aspect of the body of the stomach, the findings were similar. There was complete achlorhydria with rapid emptying, but there was an excess of opalescent fluid and little mucus. Forty-three cases were examined after gastrojejunostomy. All showed deep bile staining of more than half the specimen, and in 90 per cent. of cases bile was found in the fasting gastric fluid. In 70 per cent. of cases the meal disappeared more rapidly than before operation, the average time of emptying being one hour and fifteen minutes. In two cases of gastrojejunal ulcer the acid curves were above the limits of normal. Of fifteen cases of carcinoma of the stomach investigated, in 67 per cent. the curves showed complete achlorhydria. The specimens were usually copious and contained dirty mucus. Macroscopic blood appeared in 27 per cent. of cases of which half were operable. Nine cases of chronic appendicitis were investigated. In 78 per cent. of these the curves were within the limits of normal. Seven cases of gallstones were investigated, some associated with acute cholecystitis, and some with chronic cholecystitis. In 83 per cent. of cases the curves fell within the normal limits. Eight cases were investigated in which the common bile-duct was obstructed. Very high acid curves, either of the plateau type or of the climbing type, appeared in 88 per cent. of cases. In a great variety of conditions there occurred a complete achlorhydria, and the specimens were scanty, difficult to withdraw, and mixed with mucus. Such findings were invariably associated with rapid emptying. In the majority of cases examined of visceroptosis, pernicious anemia, and cirrhosis of the liver these findings were present. In cases of myeloid leukemia, acne rosacea, and lupus erythematosus there was a low hypochlorhydria. A prolonged secondary anemia, such as may be produced by repeated small hemorrhages from a duodenal ulcer, may result in achlorhydria. Further, this may remain after return of the blood condition to normal.

Archives Franco-Belges de Chirurgie, Brussels

September-December, 1922, **25**, No. 12

*Goiter with Metastasis. E. Delannoy and A. Dhalluin.—p. 1047.
*Juvenile Deforming Osteochondritis. Vignard.—p. 1088.
*Palpation of Hip Joint Through Rectum. J. Cottalorda.—p. 1092.
*Regional Anesthesia of Neck and Arm. Brunin and Vandeput.—p. 1098.

Simple Goiter with Metastasis.—Delannoy and Dhalluin describe a case with photomicrograms, and compare it with 71 cases from the literature. Their conclusion is that these goiters with metastasis are always malignant, although the primary cancer in the thyroid may be latent. The data presented emphasize the necessity for examining the thyroid for unsuspected malignant disease whenever a neoplasm is found in a bone. In the cases tabulated, the metastasis was in a bone in all but a few cases, with or without metastasis elsewhere. In one man, 65 years of age, the metastasis was in the eyebrow. In another, aged 63, with a large goiter of four years' standing, there were metastases in liver, kidneys, pleura and lungs. The bones involved were mostly in the upper part of the body, but in some cases the metastasis was in the pelvis or femur. In 30 cases the spine and in 19 the skull were involved. In 17 cases death occurred in less than a year after the metastasis had been noted; in 15 within five years, of the 39 cases in which the outcome was recorded. In Helbing's case the man, aged 31, survived for seventeen years; the metastases were in sternum, femur and spine. In Wilkens' case the man, aged 72, with metastases in skull and lumbar spine, lived for seven years.

Juvenile Deforming Osteochondritis of the Hip Joint.—Vignard describes the findings in two cases in which he operated. The joint became totally stiff thereafter in the boy, 14 years old; but complete function was regained in the girl, aged 9. In this case, nothing abnormal was found when the cartilage was divided.

Palpation of Hip Joint Through the Rectum.—Cottalorda refers to cases of fracture of the acetabulum, of which he has compiled ninety-nine cases, in addition to ten from his own experience. He experimented further on the cadaver. All this experience testifies that palpation through the rectum does not reveal conditions in the hip joint unless the finger is exceptionally long, the patient thin and docile or deeply anesthetized, and the acetabulum much out of shape.

Regional Anesthesia for Operations on Neck and Arm.—This is the concluding portion of an exhaustive study of ways and means for blocking the nerves to allow operations on different areas of the neck, arm and hand.

Archives des Maladies du Cœur, Paris

December, 1922, **15**, No. 12

*Cardiac Disturbance from Arteriovenous Aneurysm. I. Nanu et al.—p. 829.
*Oxydases and Peroxydases of the Blood. J. Sabrazès.—p. 841.
Auricular Insufficiency in Chronic Lung Disease. Lutembacher.—p. 849.

Cardiac Disturbances Following Arteriovenous Aneurysm.—Nanu, Alexandrescu-Dersca and Lazeanu describe two cases of arteriovenous aneurysm of the leg in which operation was followed by recovery from cardiac disturbances. Even the dilatation of the heart was well influenced.

Oxydases and Peroxydases of the Blood.—Sabrazès reviews the question of oxydases and peroxydases of the blood cells. Monocytes with an oval nucleus do not contain peroxydase; polymorphonuclears give the reaction, although it is not very strong. Eosinophils contain more peroxydases than the neutrophils. It is interesting to note that in the pus of acute gonorrhea, those parts of neutrophils which contain gonococci, have lost the peroxydase. The mast cells from the peritoneal cavity of white rats, the megakaryocytes and blood platelets, did not give the reaction.

Archives Médicales Belges, Liége

December, 1922, **75**, No. 12

*Neurasthenia. F. Dauwe.—p. 1169.
*Protein Therapy in Genito-Urinary Diseases. G. d'Hooghe.—p. 1195.
*Eugenics. Govaerts.—p. 1201.

Neurasthenia.—Dauwe makes a detailed study of the physical symptoms and mental condition in neurasthenia.

Protein Therapy in Genito-Urinary Diseases.—D'Hooghe publishes cases of chronic urethritis, acute epididymitis, gonorrheal arthritis and gonorrheal conjunctivitis in which protein therapy was successful. It was also applied in skin and syphilitic affections, often with favorable results.

Eugenics.—Govaerts concludes that eugenics belongs in the domain of social medicine. It consists principally in the knowledge of heredity and the action of social institutions on the transformation of the race. It teaches us that if we do not combat hereditary causes, all improvements brought into the life and work of a generation will be only temporary, and they will have to begin all over again in the next generation. It shows the necessity of taking into consideration the child of tomorrow as well as the man of today.

Bulletin de l'Académie de Médecine, Paris

Jan. 2, 1923, **89**, No. 1

The Past and Future of Pharmacologic Chemistry. Béhal.—p. 2.
*Diabetic Acidosis. A. Desgrez et al.—p. 25.
*Constitutional Irritability and Respiratory Spasm. E. de Massary and J. Walser.—p. 33.
*Retraction of Palmar Aponeurosis. Peugniez and Joly.—p. 35.
*Backward Lowering of the Root of the Tongue Causing Respiratory Disturbances. P. Robin.—p. 37.

Diabetic Acidosis: Action of Levulose.—Desgrez, Bierry and Rathery emphasize the influence of different rates of absorption on the assimilation of carbohydrates. Some diabetics tolerate levulose distinctly better than glucose. They maintain, contrary to Labbé, that the acidosis due to lack of carbohydrates is essentially the same as the acidosis of diabetics. The difference of opinions is due to confounding the acidosis of complete fasting with the acidosis from absence of carbohydrates with a large supply of fat. The fat, in an auto-experiment of Forssner, led in three days to a daily excretion of 42.80 gm. of acetone bodies. The symptoms of intoxication forced the scientist to stop the experiment, because he did not intend to commit suicide.

Emotional Instability and Respiratory Spasm.—De Massary and Walser discuss almost monosymptomatic forms of what they call constitutional hyperemotivity, *émotivité anxieuse*. The cardinal symptom may be respiratory, circulatory or digestive. The respiratory affection merits consideration as a real morbid entity. It consists in a sensation of oppression, feeling of difficulty in breathing, and characteristic uneasiness, which may increase to actual distress. By distracting the patient's attention it is possible to diminish the severity of the disturbance. The influence of the pneumogastric nerve is the evident cause, and other manifestations of vagotonia are found constantly (oculocardiac reflex), or frequently in these cases (hyperacidity, sweats, respiratory arrhythmia, hypotension). Atropin has a curative action on the condition.

Retraction of Palmar Aponeurosis Cured by Penetrating Roentgenotherapy.—Peugniez and Joly report the case of a patient with retraction of the palmar aponeurosis who recovered after roentgen-ray treatment.

Backward Fall of the Root of the Tongue as Cause of Respiratory Disturbances.—Robin gives a description and pictures of an overlooked cause of respiratory disturbances in the upper respiratory passages. The seat is in the oral pharynx, and the obstruction is due to a backward lowering of the root of the tongue. To overcome it, the patient has to open the mouth. The angles of the lower jaw are nearer together than normal; the chin is receding. The respiratory difficulty ceases if the patient is instructed to protrude his lower jaw so that the lower teeth come in front of the upper ones. An apparatus which causes such propulsion of the chin is the adequate treatment of the condition.

Bulletin Médical, Paris

Jan. 13, 1923, **37**, No. 2

*How Should Hodgkin's Disease Be Classified? Gastinel et al.—p. 39.
*Subcapsular Thyroidectomy in Exophthalmic Goiter. T. Asteriades.—p. 45.
Innervation and Chemical Excitants of Tissues. Guillaume.—p. 46.

How Should Hodgkin's Disease Be Classified?—Gastinel, Reilly and Potez ask this question, and state that Hodgkin's disease from a nosologic standpoint is a transition between and association of tumors and inflammatory lesions. From an anatomic standpoint, it is a morbid entity, and should be called "malignant lymphogranuloma."

Surgical Treatment of Exophthalmic Goiter by Subcapsular Thyroidectomy.—Asteriades describes and extols Siraud's method of subcapsular thyroidectomy under local anesthesia. It is simple, without danger, rapid and sure. He reports fifty-seven "brilliant successes" with this technic in fifty-seven cases.

Encéphale, Paris

December, 1922, **17**, No. 10

Cervical Neurofibroma. E. Flatau and B. Sawicki.—p. 617.
Neurosyphilis. C. I. Urechia and D. N. Elekes.—p. 627.
*Psychic Origin in Organic Affections. W. H. B. Stoddart.—p. 638.
Galvanic Nystagmus. J. Molinié.—p. 641.
Epidemic Encephalitis with Pithiatism. A. Gilles.—p. 644.
True Melancholia and Periodic Asthenia. R. Benon.—p. 646.

Psychic Origin of Certain Organic Affections.—Stoddart draws attention to the fact that many apparently organic affections may be due to psychic causes which can be discovered and treated by psychanalysis.

Journal de Radiologie, Paris

December, 1922, **6**, No. 12

Electrical Methods in Diagnosis and Prognosis of Peripheral Paralysis. G. Bourguignon.—p. 565.
Electrodes for Surgical Diathermy. H. Bordier.—p. 595.

Revue Franç. de Gynécologie et d'Obstét., Paris

December, 1922, **17**, No. 12

*Tubal-Abdominal Pregnancy. E. Zarate et al.—p. 625.
*Thirty-Six Pregnancies. L. Laurentie.—p. 645.
*Typhoid Bacilli in Fetal Blood. J. Vignoli.—p. 646.

Extra-Uterine Pregnancy at Term.—In the case reported by Zarate, Rojas and Widakovich the fetus had continued to develop after unnoticed rupture of the gravid tube. The uterus enlarged correspondingly, with symptoms of labor at term. The child was extracted and seems to be developing normally at the age of 6 months. The neck is short and the face too large for the head, but there is no pronounced deformity. It was the third pregnancy; the second had terminated in an abortion. In five cases summarized from the records, two children had developed normally to the fourth and ninth year. Another child is mentally backward; the others died soon after birth; one of the mothers died. If the fetus in an extra-uterine pregnancy survives to the fifth month, it generally goes to term. When diagnosed in the first half of pregnancy, operative treatment at once is imperative unless the woman objects. The exaggerated weight of the lower abdomen, fetal movements felt close to the skin, and the fact that they are generally painful, aid in the diagnosis. Internal examination is liable to entail abortion or premature delivery. The diagnosis during the first months is based on the diffuse abdominal pains and the symptoms of rupture of the tube, with or without external hemorrhage. The false labor is liable to injure the fetus; it should be extracted at once. The authors were able to extract the sac, with the placenta still adherent, and the first 5 cm. of the tube, and the ovary. There was scarcely any hemorrhage. The child weighed 2,860 gm.

Thirty-Six Pregnancies.—Laurentie reports a Syrian woman, now 85, who has borne twenty-four healthy children and has had twelve abortions. She did not nurse the children. She is exceptionally well preserved for her age. Her mother had twenty-three children.

Typhoid Bacilli in Fetal Blood.—Typhoid bacilli were cultivated from the blood of the umbilical cord of the premature child of a woman with typhoid. Serologic tests were negative with both mother and child.

Jan. 25, 1923, **18**, No. 2

*Low Cesarean Section. P. Gaifami.—p. 33.
*Sedimentation of the Blood in the Pregnant. H. Vignes and P. Hermet.—p. 42.
*Flushing the Uterus in Puerperal Infections. L. M. Pierra.—p. 44.

Low Cesarean Section.—Gaifami extols the advantages of transperitoneal cesarean section on the lower segment of the

uterus, as he observed them in the fifty cases he describes, including several with beginning infection. The pregnant uterus at term was removed in one case two years later; no trace could be found of the incision without the microscope. Conditions in the lower segment are more favorable for healing. In eleven cases the cesarean section was repeated, and the cicatrix was solid in all even when expectant treatment had been pushed to the extreme.

Sedimentation of Erythrocytes.—Vignes and Hermet found that sedimentation was accelerated in the blood of women advanced in pregnancy, but not early in pregnancy. They found it accelerated also in animals whose blood was being drawn repeatedly for antiserums.

Washing Out the Uterus in Treatment of Puerperal Infection.—Pierra refers to the revival of continuous irrigation as a means of treating infection limited to the cavity in question. The conditions in the uterus are much like those in a war wound, and Andérodias has reported 133 cured of 148 cases of puerperal infection. In 3 of the cases in which it failed, death was explained by kidney or lung disease; Perazzi's 6 patients all recovered, also Petit's 2, including one complicated with a gangrenous fibroma, and Michon's 12 of febrile abortion. In some of this last group curetting had failed to relieve. Pierra found it equally effective in a case of gravely infected criminal abortion. The fluid used totaled from 300 to 600 c.c. in the twenty-four hours. Petit used four to eight tubes, injecting 10 c.c. through each, every two hours, to a total of 500 to 1,000 in the twenty-four hours. Some used surgical solution of chlorinated soda, others preferred a milder disinfectant. Pierra and Michon used and prefer a 1:250,000 solution of silver nitrate (10 drops of a 1 per cent. solution to the liter of water). The weak solution stimulates repair and destroys micro-organisms without injuring the tissues.

Schweizer Archiv für Neurol. u. Psychiatrie, Zurich

1922, **11**, No. 2

*Rigidity in a Torsion Spasm After Encephalitis. R. Mourgue.—p. 163.
Parallelism of Psychic and Motor Activity. H. Steck.—p. 208.
Treatment of Epilepsy. V. Demole.—p. 215.
Tubercle in Tegmentum of the Pons. H. W. Stenvers.—p. 221.
Cerebral Syphilis and Psychoses. L. Redalié.—p. 230.
*Pituitary Gland in Cerebral Lesions. V. Desogus.—p. 244.
*Dysthyroidism, Anaphylaxis and Epilepsy. V. M. Buscaino.—p. 261.

Decerebrate Rigidity in a Torsion Spasm After Encephalitis.—Mourgue gives a clinical study of a case of a typical torsion spasm after epidemic encephalitis, and discusses the literature, especially with regard to the action of the liver in Wilson's disease. The patient had an alimentary levulosuria. Mourgue considers the extrapyramidal syndromes as affections of the general metabolism of proteins.

Pituitary Gland in Cerebral Lesions.—Desogus investigated the influence of different cerebral lesions on the pituitary gland in fifty dogs. He destroyed in some of them both occipital lobes, in others the parietal or frontal lobes. He found hyperemia and hypersecretion of colloid and a strong eosinophilia from twenty to thirty days after the operations. Between thirty and sixty days a regression takes place which reaches its maximum during the next month. After a hundred days, the pituitary becomes normal.

Dysthyroidism, Anaphylaxis and Epilepsy.—Buscaino found in thyroids of epileptics and of persons suffering from epileptiform convulsions, crystals which he considers as abnormal proteins. Popovici found that Abderhalden's reaction is much more frequent and strong if the thyroid from epileptics is used. He consider epilepsy as an anaphylactic crisis due to these proteins, and proposes extirpation of the thyroid and subsequent substitution by tablets in the systematic treatment of epilepsy.

Archivio Italiano di Chirurgia, Bologna

December, 1922, **6**, No. 4

*Mixed Tumor of the Orbit. G. M. Fasiani.—p. 333.
*Operations on Hour-Glass Stomach. C. Gamberini.—p. 347.
*Pseudo-Hydronephrosis. G. Razzaboni.—p. 365.
*Absorption by the Tunica Vaginalis. L. Torraca.—p. 404.
*Treatment of Exstrophy of the Bladder. U. Camera.—p. 421.

Mixed Tumor of the Orbit.—Fasiani resected temporarily the external wall of the orbit, and this allowed easy enucleation of the tumor. It had been developing for five years in the right eye of a man in the thirties. It was as large as a pigeon's egg, and was encapsulated. After its removal the eyeball returned to its normal place, with vision 1/4.

Hour-Glass Stomach.—Gamberini operated for organic hour-glass stomach in eleven of his 150 operations on this organ. In some cases he made a gastro-enterostomy in each half of the stomach. In other cases he made a very long opening, extending at each end beyond the narrow portion of the stomach. In other cases he resected and sutured the duodenum to the stump of the stomach, proximal from the narrow portion. The various cases are illustrated.

False Hydronephrosis.—Razzaboni applies this term to accumulation of urine in a cystic pouch, independent of the kidney parenchyma. He produced typical lesions of the kind in twenty-five rabbits and dogs by hampering the circulation, as he shows with photomicrograms. The kidney suffers, and actual hydronephrosis or atrophy results unless the cystic accumulation in the perirenal or pararenal tissues is removed in time. This kidney may then recuperate completely. There is no need to resect the kidney with pseudohydronephrosis unless irreparable lesions are already present.

Absorption by the Tunica Vaginalis.—Torraca injected a stain into the cavity of the tunica vaginalis in seven dogs, and the stain appeared in the urine in from fourteen to twenty-three minutes. In eight men with hydrocele, injected in the same way with the stain, it did not appear in the urine at all in two, and in the others it did not appear until after an interval of from one to nearly seven hours, and most of the stain lingered in the tunica for days.

Exstrophy of the Bladder.—Camera describes a modification of the Segond autoplastic method which he applied in a boy, aged 5, with excellent outcome. He utilized the scrotum instead of the prepuce to cover the defect left by the Segond technic. The testicles in cases of exstrophy are usually ectopic, and the scrotum provides a stout and well nourished flap. This method might be applied to small boys even when a radical operation is planned later to do away with the urinal.

Pediatria, Naples

Jan. 1, 1923, **31**, No. 1

*Scarlet Fever. G. Di Cristina.—p. 1.
*Treatment of Typhoid and Malta Fever. G. de Finis.—p. 11.
*Leukocyte Extracts and Gärtner's Bacillus. A. Ronchi.—p. 24.
Encephalitis and Chorea. S. de Stefano.—p. 38.

Scarlet Fever.—Di Cristina claims that specific germs from blood and bone marrow from patients with scarlet fever can be constantly found in anaerobic cultures containing human corpuscles. The development is optimal after fifteen days' incubation. The added blood is hemolyzing and a precipitate forms which makes examination by the hanging drop method impossible. Staining with Löffler's or Giemsa's stain reveals a few diplococci of the size of *Micrococcus catarrhalis*. Young rabbits injected with this material cease after twelve days to increase in weight, and either die slowly from cachexia or do not recover for a long time, although the body temperature hardly increases, and no leukocytosis is present. The anatomic changes consist in intense hyperemia of all organs, a reduction of the volume of the spleen (rarely an enlargement), and parenchymatous degeneration of the kidneys. Recent cultures seem to be more fatal than old ones. Direct inoculations of blood from scarlet fever patients give less distinct results. Serologic tests were not satisfactory. Di Cristina mentions his prophylactic experiment with a preparation of scarlet fever scales subjected to the action of convalescents' serum.

Treatment of Typhoid and Malta Fever with Vaccines.—De Finis used Di Cristina's and Caronia's vaccines in ninety cases of typhoid, thirty-five cases of paratyphoid and fifty-five cases of Malta fever. Only one patient, with the paratyphoid bacillus, died. The other patients (mostly children) recovered. In many instances the recovery was by crisis after a single injection; other patients required from 3 to 4 injec-

tions at two days' interval. Intramuscular injections gave the same results as intravenous.

Action of Leukocyte Extracts on Gärtner's Bacillus.—Ronchi's experiments on guinea-pigs demonstrate the preventive and curative effects of autolysates of leukocytes on the usually very severe infection with Gärtner's bacillus.

Anales de la Facultad de Medicina, Lima

September-October, 1922, **5**, No. 3

Inaugural Lecture of Surgical Course. G. Gastañeta.—p. 177.
*Epidemic Encephalitis. M. Gonzalez Olaechea.—p. 182.
*Parasitic Disease of Lungs in Peru. A. Corvetto.—p. 196.
Inaugural Lecture of Deontology Course. G. Fernández Dávila.—p. 205.
Inaugural Lecture of Surgical Course. P. S. Mimbela.—p. 213.
Etiology of Frenasthenia. L. Ciampi and H. Valdizán.—p. 224.

Epidemic Encephalitis.—The sudden onset of intense frontal and orbital headache was the first symptom of the disease. It ran its fatal course in less than a month. It was of the choreo-athetoid type, and there was pronounced softening of the thalamostriatal region of the brain.

Parasitic Pulmonary Diseases in Peru.—Corvetto emphasizes the clinical resemblance to pulmonary tuberculosis of hydatid cyst in the lung, paragonimiasis and bronchopulmonary spirochetosis. In every tuberculosis suspect in tropical countries, search should be made for these parasites. His records include twelve cases of pulmonary echinococcosis and six cases of paragonimiasis in Peru. In the latter disease, besides the imminent danger of fulminating hemoptysis, there is danger of embolism from the ova in the arteries. As this parasite requires another host to complete its cycle, it dies in time and is expelled; the patient thus spontaneously recovers. No treatment to date has proved efficacious against the paragonimus, except possibly antimony tartrate which offers some hope of relief. Individual and international prophylaxis is imperative, and the governments of the countries exposed to oriental immigration should be on the alert. Individual prophylaxis is simple: No shellfish or crustacean should be eaten unless thoroughly cooked. To eat them raw is to invite this disease. One of Corvetto's patients was well-to-do, but most of those affected have been laborers in the fields who eat raw crustaceans from the rivers. Only two cases of the Castellani bronchial spirochetosis have been known in Peru to date. One was acute and the other chronic. As this disease is extremely contagious, isolation is necessary until the sputum is free from the spirochetes. This not only wards off contagion of others but protects the patient against superimposed infection to which he is exceptionally predisposed at this time. Concluding his article, which was read at the recent Latin American Congress, Corvetto urged a resolution calling for special study by the public authorities of the countries of America of prophylaxis of these three parasitic pulmonary diseases.

Revista Española de Medicina y Cirugía, Barcelona

December, 1922, **5**, No. 54

*Typhoid in the Army. F. Soler y Garde.—p. 687.
Serologic Diagnosis of General Paresis. Berlamino Rodriguez Arias.—p. 710.
Dietetic Therapeutics. A. Arteaga Pereira.—p. 713. Conc'n.

Typhoid in the Spanish Army.—This is a critical study by an army medical officer of antityphoid vaccination in Spain and elsewhere. Soler insists that deaths from typhoid are the direct moral responsibility of those in authority, as vaccination has proved so harmless and effectual.

Semana Médica, Buenos Aires

Jan. 11, 1923, **1**, No. 2

*Hemorrhagic Disease of the Uterus. C. A. Castaño.—p. 45.
*Menstrual Hemoptysis. J. Destefano.—p. 52.
*Elements in Intradermal Tuberculin Test. A. Bergman.—p. 53.
Vaccine Therapy of Chronic Urethritis. E. Castaño.—p. 59.
Suggestion as Factor in Crime. III. J. C. Belbey.—p. 61.
Emergency Colectomy. E. Villagra Muro.—p. 78.
Infant Mortality in Santa Fe. E. Martinez Zuviria.—p. 82.
Diet for the Insane. F. Gorriti.—p. 88.
Dosage of Sodium Cacodylate. M. Ruiz Maya.—p. 94.

Hemorrhagic Uterine Disease.—Castaño disavows his heading "Hemorrhagic Metropathies" by presenting evidence that the disturbance is in the ovary. The uterus is merely the outlet, and it shows only hyperplasia of the endometrium such as occurs physiologically in the premenstrual cycle. Treatment should be by organotherapy and radiotherapy. He has been successful with roentgen-ray treatment in virgins and in the profuse hemorrhages near the menopause. Under other conditions, he prefers radium, and reports 100 per cent. recoveries.

Menstrual Hemoptysis.—Destefano comments on the interplay of the endocrine organs in the physiology of menstruation, and relates that it can be influenced to ward off menstrual hemoptysis. This is in reality a premenstrual phenomenon, and he combats it systematically by intravenous injection of pituitary extract in the tuberculous inclined to hemoptysis. He begins it each month about ten days before the period, and repeats on alternate days till the onset of menstruation. The hemoptysis never returned in women thus treated.

Intradermal Tests for Tuberculosis.—Bergman tested thirty-six patients with intradermal injection of goat or beef serum, egg white or other alien protein, injecting it with or without admixture of tuberculin. The findings testify anew to the specificity of the tuberculin tests.

Jan. 18, 1923, **1**, No. 3

*Drainage of Edema. J. Destéfano.—p. 101.
*Open-Air Schools. T. A. Tonina.—p. 103.
Hallucinations of Moving-Picture Type. F. Gorriti.—p. 110.
*Endocrine Basis of Ear, Nose and Throat Affections. J. de la Cruz Correa and R. Becco.—p. 112.
Examination of the Kidney in Edema. C. H. Niseggi.—p. 117.
Suggestion in Crime. J. C. Belbey.—p. 122.
Tumor in Left Occipital Lobe. Juan M. Obarrio.—p. 128.
*Interpretation of Electrocardiogram. T. Lewis.—p. 133.
*Medical Impressions of America. D. Speroni.—p. 142.

Mechanical Treatment of Edema.—Destéfano indicates the dangers from resorption of dropsical fluid, overloading the heart and flooding the system with dislodged toxins which aggravate the condition of the already damaged kidneys. He had a case in 1914 in which resorption induced a kind of serous apoplexy which proved fatal. On the other hand, direct drainage of the fluid by platinum needles introduced into the skin has proved effective and harmless in his experience with 100 cases. The needles are 4 cm. long and twice the caliber of the needle used for injection of grey oil. He inserts one on each side of each leg, just above the malleoli. The head of the bed is raised by 20 cm. to aid the flow with gravity. The needles are left in place as long as needed; in some cases up to four or five days. In one case 27 liters thus drained away in forty-eight hours. Gauze is wrapped around the outer end of the needle to separate it from the skin. Infection of the puncture holes occurred in only one instance. In this case an inflammatory reaction around one hole caused brief fever that subsided within twenty-four hours.

Open-Air Schools.—Tonina reviews the experiences at the four open-air schools at Buenos Aires organized since 1909. This class of schools is designed for weakly children, and the task of the medical school inspector, he asserts, should be far more comprehensive than in other schools. He should be empowered to treat the debility and in some cases to treat the underlying chronic malaria, anemia, syphilis or endocrine derangement.

The Endocrine Factor in Disease of the Ear, Nose and Throat.—Thirteen cases are described in which appropriate organotherapy aided in the cure of otorhinolaryngologic affections which had proved rebellious to all other measures. In some of the cases the return of tonsillitis with the menses was arrested by ovarian treatment. In other cases, organotherapy usefully supplemented operative measures or medication to reduce congestion. One man with spasmodic rhinitis, false asthma and ethmoiditis, improved materially under peptone and organotherapy. Measures to correct menstrual anomalies in some of the cases seemed to influence favorably the deafness or recurring throat disease.

Interpretations of the Initial Phases of the Electrocardiogram.—This is a translation in full of Sir Thomas Lewis'

article published in the *Archives of Internal Medicine*, September, 1922, p. 269.

Impressions of America.—In his visit to Washington, D. C., Prof. David Speroni was impressed with the insignificance of the buildings housing the medical schools in comparison to the magnificence of the public buildings. At Baltimore, the Pathology Institute attracted his attention most, and especially its arrangement of separate halls for the pathologic findings of different diseases. He dismisses the medical clinics and laboratories as not calling for special mention, saying they are no better than those of the Rawson Hospital at Buenos Aires. He addressed the students at Washington, describing the Open-Door colony for the insane near Buenos Aires, which has been called by outsiders the best institution of its kind in the world. Speroni spoke in Spanish, a Porto Rico student giving a running translation.

Deutsche Zeitschrift für Chirurgie, Leipzig

November, 1922, **176**, No. 1-3

*Suppurative Pericarditis. A. Hilse.—p. 1.
Etiology of Muscular Torticollis. O. Heinemann.—p. 15.
*Hypernephroma. E. Muscholl.—p. 22.
*"Sexual Operations." W. Haubenreisser.—p. 31.
*Subcutaneous Extravasation of Lymph. R. Bonn.—p. 53.
*Osteomalacia with Epilepsy. A. Brenner.—p. 66.
*Luxation of Hip Joint in Adults. J. Fränkel.—p. 84.
*Hemophilia. K. H. Bauer.—p. 109.
Lymphogranulomatosis with Infiltrative Growth. H. Meyeringh.—p. 185.
Actinomycoma in Omentum. F. Matz.—p. 217.

Suppurative Pericarditis.—Hilse reports two cases in which there was adhesion between the heart and the pericardium. One of the young men died after incision of the pericardium by Ollier's method. The other recovered after pericardiotomy by Rehn's method. About 1 liter of pus was thus released. The anterior surface of the right ventricle was adherent to the pericardium. A drainage tube was introduced over the vena cava, one on the right and one on the left side, and the incision was left open. By the next day all the symptoms had disappeared except the edema of the legs. Continuous arrhythmia soon developed, and there is still retraction of the chest wall and diaphragm with the pulse beat. Six weeks later walks of 10 km. caused no disturbance. The puncture can be made below the fifth rib. From the left margin of the sternum to the left nipple is the zone in which there is no danger of piercing the heart or lung with a cautious puncture. Hilse declares that infection of pleura or lung during the procedure is more serious than running the needle into the heart muscle. In both his cases there was pyocyaneus infection of the wound. The advantage of rinsing with saline during the operation and in changing the dressings was manifest. It did not seem to have any appreciable influence on the heart action. Several clots of fibrin were thus washed out which otherwise might have obstructed the tubes and entailed adhesions in the pericardium. The drainage tubes must not be removed too early; he noted retention of pus as late as the twenty-third day.

Hypernephroma.—The large Grawitz tumor in the woman, aged 30, had no connection with the kidneys or suprarenals. It was growing from the posterior abdominal wall, between the left kidney and the spine, and it was adherent to the pancreas. Recovery was prompt after its removal.

Sex Gland Operations.—Haubenreisser analyzes the results to date of transplantation of testicles, roentgen irradiation of the testicles, and the two Steinach methods of ligating the vas deferens. He cites seventy articles reporting experiences in these three lines of sex gland operations, and reports ten cases from Payr's service, and four cases given only roentgen-ray treatment. Not the slightest influence from the irradiation could be detected, and only one of the patients presented any improvement. This was after transplantation of testicle tissue. This seems to be the only method which offers results, and this only after late castration. The transient effect from the Steinach ligation is due mainly to absorption of hormones from stasis of the testicle secretion, aided by autosuggestion.

Traumatic Extravasation of Lymph.—Bonn reports four recent cases of what has been called traumatic loosening and separation of the skin. Puncture and a compressing bandage may cure in cases of small extent. Otherwise he advises ample incision with swabbing, painting the walls of the cyst-like cavity with tincture of iodin, and draining. The walls of the cavity bleed more or less as this is done, and thus the tissues get a more nourishing fluid than the lymph.

Osteomalacia with Epilepsy.—The epilepsy first became manifest at the age of 25, and osteomalacia developed four years later during pregnancy. The clinical picture was that of puerperal osteomalacia, but the course and the tenderness of the skull resembled the osteomalacia from a deficient diet. There was a history of rachitis and convulsions in childhood, and of food privation in recent years. The condition materially improved under systematic phosphorus and cod liver oil treatment (phosphorus 0.01 gm.; cod liver oil, 100 gm. A teaspoonful three times a day, to a total of 0.05 gm. phosphorus). Calcium and nourishing food were given at the same time. In two months the woman was able to get up, after having been bedridden for six months. The epileptic seizures have become milder and the intervals longer. Epinephrin was not borne well, and had to be abandoned. The woman's two children have rickets, and one also has spasmophilia.

Luxation of the Hip Joint in Adults.—Fränkel refers to unilateral congenital luxation, and discusses the hindrance to reduction which may be offered by the iliopsoas muscle. Severing this muscle allowed reduction without further measures in three of the nine cases described.

Inheritance and Constitution in Hemophilia.—Bauer devotes seventy-six pages to an exhaustive study of 653 hemophilic families, with an average of 5.2 children per family. He explains that science has passed beyond the era of anatomy, of cellular pathology, and is now entering the era of function and energy, with the gen, the invisible rudiment, the transmitted germ of a character, instead of the cell, as the new and final unit for analysis. It is at the same time the starting point for a new synthesis, the aim of which is to determine the essential nature of the individuality.

Klinische Wochenschrift, Berlin

Jan. 1, 1923, **2**, No. 1

*Water Metabolism. C. Oehme.—p. 1.
*Fibrous Pericarditis. Volhard and Schmieden.—p. 5.
*Dynamic "Protein Fever." Rietschel.—p. 9.
Assay of Guaiacol Preparations. F. Verzár.—p. 12.
Peristalsis of Capillaries. E. Kylin.—p. 14.
Ventricular Fibrillation in Man. H. v. Hoesslin.—p. 15.
*Salt Metabolism. P. Jungmann.—p. 18.
*Kidney Function Tests. E. Rehn and L. Günzburg.—p. 19.
*Petruschky's Tuberculin Liniment. H. Ulrici.—p. 20.
Mechanical Impulse for Development of Frog's Eggs. H. Voss.—p. 21.
*Potassium Ions and Muscle Tonus. S. M. Neuschlosz.—p. 21.
*Surviving Heart of Homothermic Animals. F. Klewitz.—p. 22.
Hemispasm of the Trunk in Infant. Sonntag.—p. 23.
*Paralytic Ileus After Diphtheria. B. de Rudder.—p. 23.
Treatment of Pernicious Anemia. G. Rosenow.—p. 24.
German Social Insurance. Mugdan.—p. 27.
"Vitalismus" by Conviction. V. v. Weizsäcker.—p. 31.
Creatin-Creatinin Metabolism. M. Bürger.—p. 33.

Water Metabolism.—Oehme reviews the disturbances of water metabolism and discusses especially its central regulation. We do not know anything about the influence of hormones on the central nervous system, but pituitary extract influences the diuresis even after destruction of the nerves of the kidneys. No definite proofs were given that the condition of the blood colloids changes in diuresis due to caffein. Comparison of the refraction and viscosity of serum, which should show the alleged changes in dispersion of colloids, had negative results. It is more probable that the changes occur in the colloids of the organs themselves—kidneys as well as tissues. The tendency of the organism is to develop ontogenetically and phylogenetically toward constancy of blood composition and changes of concentration in the cells. These cause the movement of substances into them and from them. This regulation is perfected by especially sensitive cells of the central nervous system. It is probable that, in cases of diabetes insipidus in which changes were observed only in the pituitary gland, the authors omitted to examine the tuber and the paraventricular nuclei of the brain.

Fibrous Pericarditis.—Volhard and Schmieden point out that a simple adhesion of the pericardium does not necessarily cause clinical symptoms, but fibrous thickening and

contraction of the pericardium is characterized by typical transudate in the pleural and peritoneal cavities. These fluids may even assume an inflammatory character. There are two types or rather degrees of the disease. If the adhesions with the thorax are more pronounced than with the epicardium, systole is difficult, because the heart has to overcome its immobilization by the chest wall. The other type occurs if the fibrous union between the epicardium and pericardium predominates. In this case, diastole is hampered. In the first type the chest wall is retracted with every systole, and if the heart is not strong enough and capable of diastolic filling, the diastole brings the heart forward. This is often mistaken for an apex beat. The second type (or degree) has progressed so far that energetic diastole is no longer possible. The usual clinical signs belong only to the first, milder type. Yet the diagnosis of the second degree is possible by observing the disproportion between the insignificant local findings and the extreme, apparently cardiac, stasis (edema, cyanosis, enlargement of liver, dyspnea). In very severe cases a radioscopic examination shows that the heart is small, and gives an impression as if it were standing still, because the amplitude of movement is minimal. In both degrees, the chest wall over the heart does not rise during respiration (Wenckebach). A very characteristic sign of the second type is the constant fullness of the veins of the neck, which show, in the upright posture, a distinct double collapse in systole and diastole. This phenomenon may be seen even in the arm veins. The venous pressure is from 200 to 300 mm. water. Ascites may precede the general edema, and be the main clinical feature for years, and cause innumerable punctures, Talma's operation and wrong diagnosis. A similar venous stasis occurs only in severe cases of mitral stenosis. Yet the dilatation of the right auricle, the strong impulse of the heart, the irregularity of its action, together with the thrill and presystolic murmur, differentiate this disease. Volhard has tried since 1907 to convince different surgeons as to the necessity of extirpation of the anterior part of the pericardium, and he reports briefly seven such cases. The adhesion was in some cases so extensive that the danger of rupturing the right heart made a complete operation impossible. Two cases in which Schmieden operated were enormously relieved. He reports the history of efforts in this line and describes the operative technic.

Dynamic "Protein Fever."—Rietschel investigated the "protein fever" of infants which had been observed by Benjamin in 1914. Healthy infants kept on a comparatively concentrated diet had fever when a part of the carbohydrates or fat was substituted by an isocaloric amount of protein. The infants did not give the impression of being sick, and ingestion of water brought the temperature within a few hours to normal. He attributes the fever to the specific dynamic action of proteins which could not be physically compensated because the food did not contain enough water. This condition is different from toxic protein fever, which is due either to toxic products of decomposition of proteins or to bacterial putrefaction.

Salt Metabolism.—Jungmann publishes a new case of an affection of the pituitary (abscess) in which initial symptoms of diabetes insipidus disappeared. It is probable that they were due to increased pressure on the base of the brain during the development of the abscess. The full complex of diabetes insipidus consists in disturbance of the vegetative centers that regulate water and salt metabolism, and the composition of the blood.

Kidney Function Tests.—Rehn and Günzberg record the hydrogen ion concentration of ureter urine in patients who received hydrochloric acid before and an intravenous injection of sodium bicarbonate during the experiment.

Petruschky's Tuberculin Liniment.—Ulrici tested patients, who were sensitive to tuberculin injections, with twenty times the maximal doses of Petruschky's tuberculin liniment. There was no reaction at all. He admits that the preparation is inoffensive and concludes also that it is absolutely ineffective. Petruschky's claim to have freed the peninsula Hela from tuberculosis is not confirmed by physicians, who found in four years ten cases of tuberculosis among its 500 inhabitants.

Potassium Ions and Muscle Tonus.—Neuschlosz studied the action of strychnin on toads: he suspended one gastrocnemius muscle in Ringer's solution and the other in a similar solution free from potassium. While the tetanus was the same, the preceding tonic stage was very feeble in the muscle in the potassium-free solution.

Surviving Heart of Warm-Blooded Animals.—Klewitz found that the amounts of sugar used up by surviving hearts (rabbit, dog) are very different, and do not depend upon the activity of the heart. Nitrogenous bodies can be also metabolized by these hearts.

Paralytic Ileus After Diphtheria.—De Rudder describes a case of paralytic ileus occurring in a 3 months old infant, fourteen days after nasal diphtheria.

Mitteil. a. d. Grenzgeb. d. Med. u. Chir. Jena

1922, **35**, No. 5

*The Roentgen Rays in Duodenal Diagnosis. E. Saupe.—p. 555.
*The Blood Picture with Fibrous Osteitis. A. Roseno.—p. 586.
*Puncture with Subphrenic Abscess. C. Hirsch.—p. 595.
*Spinal Cord Tumors. M. Sgalitzer and S. Jatrou.—p. 598.
*Refractometer Findings in Cancer. Nather and Orator.—p. 611.
*Exophthalmic Goiter Problems. B. Breitner.—p. 637.
*Why Muscles Atrophy. A. W. Meyer.—p. 651.
Histologic Findings in Atrophied Muscles. C. Froboese.—p. 683.
*Tonus and Creatin Content of Striated Muscle. E. Sulger.—p. 691.

Interpretation of Duodenal Roentgenograms.—The roentgenograms in 5 cases of diverticulum in the duodenum and of several other unusual cases are reproduced. In one puzzling case there had been no symptoms from the stomach but partial ileus developed, and blood was found in the vomit. The roentgen rays revealed a large cancer in the upper duodenum. Saupe compares the roentgen findings in ten cases with the condition found at the laparotomy or after subsidence of symptoms under medical treatment.

The Blood Count in Fibrous Osteitis.—The differential blood count was within normal range in the three cases examined.

Puncture of Subphrenic Abscess.—Hirsch describes a technic for exploratory puncture of right subphrenic abscess. One patient was a physician who had had twenty-three exploratory punctures in the course of three months; none of them had brought pus. The punctures had all been made in the area of absolute dulness above the liver. Roentgenoscopy located the abscess in an area of relative dulness, and a long needle introduced a little above the absolute dulness brought pus at once. Prompt recovery followed evacuation of the abscess.

Roentgen Findings with Spinal Cord Tumors.—Fifteen cases are summarized in which the tumor had grown from the spinal cord or its membranes. In three of the ten extramedullary tumors there were small exostoses on the nearest vertebrae, while the spine seemed otherwise intact. The neurologic, roentgen and operative findings are compared with the course, and with the necropsy findings later in five cases.

Refractometer Findings in Cases of Cancer and in the Predisposed.—Nather and Orator found that after the age of 45, healthy persons respond to serologic tests in the same way as persons with cancer. They accept this as a specific predisposition to malignant disease because the cell reaction is specific, and may persist unmodified after removal of the cancer. It may be possible to modify this predisposition in some way, for the prophylaxis of cancer.

Exophthalmic Goiter Problems.—Breitner asks whether exophthalmic goiter is a disease *sui generis* or merely the severest form of a pluriglandular affection in which the thyroid plays the leading rôle. Another question he propounds is whether there can be affections of the endocrine ring in which the thyroid plays such a subordinate part that the clinical picture can be distinguished from the thyrosis pictures. He queries further whether a neuropathic constitution, degenerative tendencies and primary nervous disturbances are the real affection, and the exophthalmic goiter is merely a graft on this. He says that for more than a year all the exophthalmic goiter cases, in Eiselsberg's clinic, have

been closely studied from these standpoints. It is already evident, he says, that the extreme cases of exophthalmic goiter must be regarded as the result of the accumulation of a functional oversecretion or undersecretion of all the glands with an internal secretion.

Experimental Research on Atrophy of Muscles.—Meyer induced atrophy of muscles in cats, rabbits and guinea-pigs by immobilizing a limb in plaster.

Tonus of Striated Muscle.—Sulger discusses the tonus and creatin content of striated muscle under various conditions of tension and innervation.

Zeitschrift für Tuberkulose, Leipzig

December, 1922, **37**, No. 3

Climatic Treatment of Tuberculosis in German Middle Altitudes. A. Bacmeister and F. Baur.—p. 161. Comment. C. Flügge.—p. 167.
Origin of Tuberculosis of Suprarenal Capsules. F. Schwarz.—p. 169.
Treatment of Tuberculosis by Partial Antigens. Warnecke.—p. 184.
Comment on Frey's "Relaxation Pneumothorax." Gwerder.—p. 192.
*Calcium Treatment. Hartwich-Borrmann.—p. 193.

Calcium Treatment.—Hartwich-Borrmann combines calcium with potassium to dehydrate the organism. The prescription is calcii chloridi 30 parts; potassii acetatis 60 parts; aquae 285 parts. Sig.: One teaspoonful in a glass of warm water, half hour before breakfast. In exudates, good results were obtained after giving up to 6 teaspoonfuls daily. This treatment has been applied in appropriate cases during the last two years among the 600 inmates of the Lyster Sanatorium in Norway. A number of typical cases are described in detail to illustrate the special advantages in cases with profuse moist rales. The calcium can be given by the mouth or rectum, subscutaneously or by the vein, and in various forms. A dry cough is no contraindication for calcium treatment, but the doses should be smaller.

Zeitschrift für urologische Chirurgie, Berlin

Jan. 15, 1923, **11**, No. 5-6

*Hypertrophy of the Prostate. E. Kornitzer and C. Zanger.—p. 137.
*Valve-Like Closure of Urethra Opening. C. O. Schmidt.—p. 158.
*Technic for Nephrotomy. A. Heymann.—p. 168.
Perirenal Hygroma. O. Connerth.—p. 169.
*Malformation of Uterus, One Kidney Missing. G. Eismayer.—p. 191.

Hypertrophy of the Prostate.—Kornitzer and Zanger give photomicrograms from six cases of hypertrophy of the prostate in which connective tissue, muscle and gland tissue were all involved.

Dilatation of Urinary Organs from Valvelike Obstruction to Outlet of Bladder.—The protruding abdomen of the premature child measured 35 cm. The diameter was about twice that of the shoulders. A fold in the bladder wall seemed to have acted like a valve to close the inlet to the urethra.

Technic for Nephrotomy.—Heymann recommends nephrotomy—without decapsulation—as by far the best means for treating neuralgic pains in the kidney accompanying degenerative nephrosis. To avoid hemorrhage, he incises only the kidney proper, and does not carry the incision into the kidney pelvis. This probably would suffice also for operative treatment of essential hematuria.

Malformation of Uterus and Kidney.—Eismayer summarizes from the literature 122 cases of deformity of the uterus with one kidney missing, and describes one case. The woman died from puerperal sepsis after premature delivery. The right kidney was abnormally large and the uterus seemed to consist of only the right cornu. There was no kidney on the left side.

Zentralblatt für Chirurgie, Leipzig

Jan. 6, 1923, **50**, No. 1

*Pylorus Stomach and Disposition to Ulcer. W. Koennecke.—p. 2.
*Recurrence of Gastric Ulcer. O. Wiedhopf.—p. 4.
*Recurrence of Cancer of Breast. L. v. Czirer.—p. 7.
*Testis Transplantation. C. Hammesfahr.—p. 9.
Treatment of Amputation Stumps by Sauerbruch Method. Veit.—p. 12.
*Roentgen Irradiation of Salivary Fistula. F. W. Kaess.—p. 14.
*Primary Suture After Thyroidectomy. O. Orth.—p. 16.

The Pyloric Portion of the Stomach as Affecting the Predisposition to Ulcer.—Koennecke gives the results of experiments on dogs. Four dogs, after bilateral exclusion of the pylorus and end-to-end gastro-enterostomy with the duodenal stump (Billroth I), were examined from three to four months after the operation. They presented no pathologic findings, whereas one dog with gastrojejunal anastomosis (Billroth II) developed a typical, penetrating jejunal ulcer. Peptic ulcer is not always due to a single cause; there is usually a complex condition back of it. Peptic jejunal ulcers in man are, of course, usually associated with a disposition to ulcer, as the primary operation was performed generally on account of ulcer. In animals this predisposition has to be artificially produced. In seven dogs he severed both splanchnic nerves and later he supplemented this with bilateral exclusion of the pylorus. All seven dogs survived the operation several months, and all developed typical callous, and, for the most part, deeply penetrating ulcers. The two dogs with gastrojejunal anastomosis developed peptic jejunal ulcers opposite the gastric opening, while the five dogs with gastroduodenal union (Billroth I) presented ulcers of the duodenum from 1 to 2 cm. back of the suture and corresponding to the lesser curvature. As practical conclusions, Koennecke recommends: Avoidance of exclusion of the pylorus in any form in persons predisposed to ulcer formation; as far as possible, resection for ulcer of the pylorus or duodenum; in inoperable duodenal ulcer, resection of the pyloric region, followed by the Billroth II operation (oral gastro-enterostomy); and, finally, gastro-enterostomy for ulcer only exceptionally and when there is no pyloric or duodenal stenosis.

Recurrence of a Gastric Ulcer Following Use of Silk in Suturing the Mucosa.—Wiedhopf reports a case of recurrence of a gastric ulcer, and concludes that the findings at the operation furnish further proof for the contention that silk is not so well adapted as resorbable catgut for suturing the mucosa in gastro-intestinal operations.

Local Recurrences Following Operations on Cancer of the Breast.—Czirer points out that the ordinary skin incisions used at present in operations for cancer of the breast, in part, cross the lymph paths, and in part run parallel with them; but they are all alike in one respect: In every incision the knife penetrates deeply the dangerous portion of the skin. Czirer's method, which he describes in detail, consists essentially in keeping as far away as possible from the strip of skin under which the superficial and deep lying lymph vessels pass from the mammary gland to the axilla. He argues that it is along these particular lymph vessels that metastasis is likely to occur. The lateral free border of the pectoral muscle also looks suspicious to him, and he endeavors not to get too near to its subcutaneous tissue.

A Critical Discussion of Testis Transplantation.—Hammesfahr reports the case of a man, aged 26, whose left testis had atrophied from unknown cause, eight years previously, so that only a hard body of connective tissue, the size of a peppercorn, was left. Six years after the left testis had atrophied, the patient injured the right testis by a blow with a hammer, whereupon also this testis atrophied, in spite of all attempts to conserve it. Libido and interest in his work gradually decreased. By splitting the atrophied testis and embedding it in the abdominal musculature, Hammesfahr sought to save part of the function, but histologic examination showed that there were no elements capable of functioning left—neither seminal tubules nor interstitial cells. He therefore transplanted half of a testis from a patient who had suffered a gunshot wound, and embedded it in the abdominal musculature in accordance with Lichtenstein's method. Ten days later, he noted over the transplant a slight swelling, which, in a few days became soft. On opening the swelling, he found the whole upper portion of the testis soft and necrotic. At the base he discovered a thin (3 mm.) layer of the transplant firmly adherent to the underlying tissue and plainly vascularized. Hammesfahr is almost certain that no appreciable portions of the testis implant became incorporated with the surrounding tissues, but that the adherent vascularized disk was also resorbed later. It was therefore all the more remarkable that, within a few weeks, libido became normal and had persisted at last accounts. It is hypothe-

tically possible that the testicular tissue, though soon resorbed, exerted a stimulating effect on certain vicariously functioning endocrine glands, and that these glands, thus stimulated and metamorphosed as it were, brought about the remarkable change. It is also possible that the result was due wholly to suggestion. Moreover, in judging the results of transplantation in man, we must not lose sight of the fact that sex function depends on purely psychic, imponderable factors to a greater extent than any other function of the human organism. Also it must be remembered that we possess no definitely established, general, normal measure by which to estimate such functioning. Hammesfahr does not wish to seem to oppose the idea of homoplastic transplantation of a testis, but urges the application of strict criticism to the results by the serologic control methods proposed by Stocker.

Roentgen Irradiation in Treatment of Salivary Fistula.—Kaess reports two cases in which he found that roentgen irradiation of the parotid gland, by temporarily suppressing gland function was decidedly efficacious in the treatment of salivary fistula. The patients were dismissed cured in from seventeen to thirty days. Kaess holds that roentgen irradiation deserves a special place among the numerous methods employed in the treatment of salivary fistula, and is to be recommended not only in stubborn cases, in which, as a rule, only extirpation of the gland would be considered, but also as an adjuvant in every operative method of treatment. It is conservative and simple.

Primary Closure in Strumectomy.—Orth states that not until the past year did he decide to dispense with drainage and resort to primary wound closure in resections. He is well pleased with the results. Lack of care in the operative procedure may be the reason why former attempts at primary suture did not turn out well, and that on the second or third day, and often, on account of hemorrhage, the same day as the operation, the wound had to be reopened and drained. Thus, it would seem that primary wound closure depends on three things: punctilious asepsis, cervical anesthesia and hemostasis. Cervical anesthesia, as distinct from infiltration anesthesia, is an aid to primary wound closure, as it does not affect the subcutaneous cellular tissue. Orth ligates the four main arteries at resection and in only two instances has transient tetany developed. It yielded readily to thyroid treatment. If he ligates only the two superior, and not the two inferior arteries, he finds that, in spite of ligation of the bleeding vessels in the resected area, hemorrhages usually occur, or, at least, hematomas develop, which cause the sutures to open, or, if this does not occur, the trachea may be compressed. Orth holds therefore that, in spite of the slight danger of tetany, the four main arteries should be ligated, since as a rule, vascularization in the resected stumps is assured by the retroglandular anastomoses. The two cases of tetany may have been caused by a temporary injury of the parathyroid glands, or the patients may have had a disposition to tetany.

Zentralblatt für Gynäkologie, Leipzig

Dec. 30, 1922, **46**, No. 52

Brow Presentation with Transverse Frontal Suture. Heinlein.—p. 2065.
*Inoperable Carcinoma of the Cervix Uteri. P. W. Siegel.—p. 2067.

Irradiation of Inoperable Carcinoma of the Cervix Uteri.—Siegel reports the results of roentgen and radium irradiation in 65 cases of carcinoma of the cervix, the interval since five years or more. Of these 65 cases, 29, according to Döderlein's classification, were operable, 20 were inoperable, 14 were borderline, and 2 were practically hopeless. Of the 29 operable cases, 27 were operated on, and 8 patients (30 per cent.) were still living at the end of five years. In 2 of the 29 operable cases, irradiation was employed. One of these patients still survives. Of the 14 borderline cases, 10 were operated on, and 3 (30 per cent.) survived after five years. Four were given irradiation and none survived the five year period. Of the 20 inoperable cases, 3 (15 per cent.) survive after five years. In the 2 hopeless cases, death ensued. Irradiation of inoperable carcinoma of the cervix uteri, aside from the comparatively high percentage of patients surviving after five years, checked the bleeding, oozing and the pain, and brought about an endurable state of affairs soon after irradiation was begun. Viewed in this light, irradiation of inoperable carcinoma is a great blessing, and should be instituted in every case of inoperable carcinoma.

Zentralblatt für innere Medizin, Leipzig

Dec. 23, 1922, **43**, No. 51

*Arterial Hypertension. E. Hartwig.—p. 825.

Arterial Hypertension.—Hartwig gives a short review of current opinions, and is in favor of the theory that hypertension is primary and the affection of the kidneys secondary. Yohimbin has given good results.

Dec. 30, 1922, **43**, No. 52

*Control of Puncture of Corpus Callosum. G. Gabriel.—p. 841.

Control of Puncture of Corpus Callosum by Ventriculography.—Gabriel recommends ventriculography to control the persistence of the communication made by the puncture. He was able to prove by this method a communication between the ventricles and the subarachnoidal space up to four weeks after puncture of the corpus callosum.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Dec. 30, 1922, **2**, No. 27

*Colon Disease. E. H. B. van Lier.—p. 3050.
Placenta Praevia with Twins. H. Boshouwers.—p. 3057.
Vaginal Hysterotomy for Abortion. H. Boshouwers.—p. 3058.

Colon Disease.—Van Lier describes a chronic affection of the colon characterized by attacks of pain, constipation alternating with diarrhea, and tenderness at numerous points in the colon, and pain on pressure and when jarred. The clinical picture resembles that of lead colic so closely that a similar mechanism is probably involved. When a colitis lasts longer than six weeks, it probably belongs to this category. He regards it as an incurable affection which we can improve and keep under control by preventing fermentation and the use of drastic purgatives, and by regulating the diet and encouraging the patient; but our main task is to protect the patient against useless operations. The disturbances are liable to be ascribed to gallstones, movable kidney, gastric ulcer or ovarian disease. Nearly all these patients had had the appendix removed, but without effect on the clinical picture. Van Lier describes a number of cases. One patient consulted a surgeon who diagnosed a tender tumor in the colon and advised operation. The patient then went to an internist who diagnosed spastic contraction and advised medical measures. A second internist diagnosed movable kidney and advised nephropexy—three separate diagnoses in one morning. If the entire length of the colon had been palpated, these blunders would have been avoided. In recent months van Lier has saved two patients from cholecystectomy, and has seen seven others disappointed by the persistence of symptoms after appendectomy.

Jan. 6, 1923, **1**, No. 1

*Hemangiomatous Obliteration of Portal Vein. J. F. Hulk.—p. 4.
Delivery of a Thoracopagus. J. M. van Dam and H. J. van Eldik.—p. 16.
Experiences with Criminal Abortion. J. A. van Dongen.—p. 24.
A Dicephalus Monster. E. A. J. M. Sträter.—p. 33.
*Leprosy in Dutch Art. G. van Rijnberk.—p. 34.
Medieval Regulations in Regard to the Plague in Utrecht. A. J. van der Weyde.—p. 42.
History of an Amsterdam Hospital. G. Hellinga.—p. 43.
The Social Side of Psychiatry. W. Beijerman.—p. 74.

Hemangiomatous Obliteration of the Portal Vein.—Hulk assumed that volvulus or thrombosis of a mesenteric vessel was responsible for the severe clinical picture and the discoloration of certain loops of the intestine at the exploratory laparotomy. Necropsy revealed that the portal vein was obliterated. The tissues encircling the vein had become transformed into a tumor-like porous mass, with a network of fine vessels and extensive collateral venous circulation. Twelve analogous cases have been published, and various causal factors have been incriminated. He adds that no such formation of porous tissue has ever been encountered around any other vessel.

Lepers in Art.—Eight sixteenth-century wood engravings are reproduced which portray lepers. Most of them are the

Biblical scene, in a Dutch setting, of Lazarus at the gate of the rich man, but one depicts a merrymaking of beggars, sham cripples in the yard of the "Lazarusclep." Another shows the annual parade of the lepers at Amsterdam.

Jan. 13, 1923, **1**, No. 2

*Syphilitic Central Deafness. J. H. Roorda Smit.—p. 130.
*Strangulation of Fetus by Umbilical Cord. G. C. Nijhoff.—p. 142.
*Active Immunization Against Diphtheria. Cornelia de Lange and J. C. Schippers.—p. 145.
*Blue Sclerotics and Brittle Bones. H. L. Straat.—p. 151.
Murder of Infant by Decapitation. J. P. L. Hulst.—p. 153.
Uniformity in Social Medical Legislation. W. Schuurmans Stekhoven. —p. 171.

Syphilitic Disease of the Brain Centers for Hearing.—Smit relates that of his 17 patients in this category, only 3 had consulted him on account of deafness. In 8 cases the deafness was bilateral. In all the other cases the deafness was first revealed by the examination. One patient had been deaf on the left side for twenty-two years and for seven years on the right side. He recovered his hearing under specific treatment. The diagnosis in this case had been meningitis, and no one had thought of syphilis. The prognosis is graver when the deafness appears during a stormy onset and course of the syphilis, than when it is a late manifestation, or when the syphilis is of the inherited type. Smit says that mercury answers all purposes; arsenicals are not needed, and are liable to aggravate the neurosyphilis. In the cases of inherited syphilis, in 4 the deafness developed at puberty. Another developed at the age of 21 in connection with keratitis. One patient who had been deaf for thirty-five years regained his hearing. The syphilis had been acquired only in one of the 5 cases in this group. The almost complete recovery shows that the auditory nerves had not degenerated, notwithstanding the long blocking of the auditory centers by the syphilis.

Strangulation of Fetus by Umbilical Cord.—The cord was twisted around the neck two, three or four times in the three cases illustrated. In another case the murmur could be heard and the thrill felt in the umbilical cord although, when the child was extracted, the cord was wound around the neck four times, and the child was resuscitated.

Active Immunization Against Diphtheria.—De Lange and Schippers' experience with thirty-two cases has confirmed the reliability of the Schick reaction and of the toxin-antitoxin method of prophylaxis.

Blue Sclerotics and Fragile Bones.—In the cases described by Straat the clinical picture included otosclerosis. The grandfather and two of his four children had presented the whole triad. Three of the five members of the third generation present the blue sclerotics and easily fractured bones, but otosclerosis is not apparent as yet; all are under 11 years old.

Jan. 20, 1923, **1**, No. 3

*Mongoloid Idiocy. L. Bolk.—p. 226.
Mortality in Different Parts of the Netherlands. Ouwehand.—p. 235.
*Paralysis from Occult Spina Bifida. E. Hoelen.—p. 252.
*Obstetric Examination. J. H. Van Blommestein.—p. 259.
*Physical Properties of Blood Serum. J. Koopman.—p. 264.
Stomach-Colon Fistula with Cancer. D. A. de Groot.—p. 275.
Delivery with Unsuspected Pregnancy. K. A. Rombach.—p. 276.
Pyometra After Radiotherapy of Inoperable Cancer. Lammers.—p. 278.

Mongoloid Idiocy.—Bolk explains the mongolian aspect of the eyes as the result of arrested development of the epicanthus. This arrest of development may extend to the brain. He argues further that the "hormone index" is peculiar to each individual, and that the hormone index in mongoloid idiots must differ from normal in some essential way. There must be some special irritating or inhibiting element. Biochemical research may reveal the nature of this element.

Paralysis from Occult Spina Bifida.—Hoelen reports a case which teaches that search should be made for spina bifida when neurologic disturbances develop in the legs during the period of puberty. The first symptoms had been bilateral paralysis of the peroneus muscle, with signs of degeneration and atrophy, slight dissociated sensory derangement, and exaggeration of the reflexes in the foot. The spinal fluid had a normal cell count, with very high albumin content. There was no depression of the skin, but the roentgen rays revealed occult spina bifida in the first sacral vertebra. A mass of fat and connective tissue protruded into the spinal canal through the gap in the spine. The arch of this vertebra and of the one above were resected, and the soft-part mass, adherent to the dura, was removed. All the nervous symptoms subsided thereafter, and by the end of the year the feet had returned to normal shape. The young man can walk for three hours without a trace of fatigue. This is the only instance of bilateral peroneus paralysis from this cause of which Hoelen can find records. There were no trophic disturbances in this case, but slight vasomotor derangement was manifest.

Obstetric Examination by the Rectum. — Blommestein declares that of the thirteen points we seek to determine by internal examination, eight can be determined through the rectum, as well as through the vagina. In Hermann's recent analysis of 720 obstetric cases, a temperature of 38.1 C. was recorded in 20.6 per cent. of those examined by the vagina and in 6.8 per cent. of those examined by the rectum alone.

Certain Physical Properties of the Blood Serum.—Koopman compares the findings in 800 serums examined for the temperature at which the serum coagulated when slowly heated. In the healthy, this occurred between 73.2 and 74.6 C. In 42 cases of nephritis, the findings were within normal range in all but 14; in these the coagulation did not occur until the temperature had reached 77.9, 83.9 or 90.4, or intermediate points. The blood pressure ranged from 120 to 220, and all had albuminuria and tube-casts. In 12 cases of pernicious anemia, 9 had normal coagulating and refractometer findings. In 3 the coagulating point was 80, 83.6 and 85.7, while the refractometer index was abnormally low. In all of 33 cases of ordinary anemia and some of leukemia, the coagulation point was normal, as also in his cases of heart disease. But in jaundice the coagulation point was high. This suggests that in pernicious anemia a rise in the coagulation point may be due to the bile pigment in the serum. A higher coagulating point renders the prognosis graver.

Norsk Magazin for Lægevidenskaben, Christiania

January, 1923, **84**, No. 1

*Pathology of Tissues of Ectodermal Origin. J. Henrichs and P. Henriksen.—p. 1.
*Pemphigus of the Conjunctiva. E. Trumpy.—p. 27.
*Tumor in Cerebellopontile Angle. I. Lossius.—p. 32.
*The Fat-Soluble Vitamin A. E. Poulsson.—p. 35.
Pathogenesis of Pernicious Anemia. P. F. Holst.—p. 50.

Disease of Ectodermal Origin.—Henrichs has continued his research on families presenting a combination of mental disease and skin disease. He here describes a new instance which sustains his conception that some primary anomaly in the ectoderm is responsible for this coincidence of hereditary disease of the nervous system (imbecility, von Recklinghausen's disease and ichthyosis), of the organs of sense, and of the skin. Henriksen presents microscopic evidence of degeneration of nerve fibers in such cases, and urges search for the defects in internal secretion which are probably the primary factor. Carrel's method of artificial activation may aid in this line.

Pemphigus of the Conjunctiva.—The pemphigus involved the conjunctiva at its first onset in one of the two cases described. The other patient had had recurring pemphigoid blisters in the mouth and throat for three years before the eyes were affected. No benefit was derived in either case from arsenic internally and local applications.

Tumor in Cerebellopontile Angle.—The symptoms were typical except that the optic disks seemed to be normal. The tumor was removed at one sitting. The man, aged 60, died soon afterward.

The Fat-Soluble Vitamin A in Indirect Infant Feeding.—Poulsson concludes from his research that cod liver oil contains 200 or 300 times as much of the fat-soluble vitamin A as butter. He emphasizes the necessity for giving minute doses of cod liver oil to women nursing children that do not seem to be thriving. In a case described, the infant's growth seemed to be arrested at the age of 6 weeks. Then the mother began to take a tablespoonful of cod liver oil, three times a day, and the infant immediately began to thrive. The woman's milk had always had normal fat content.